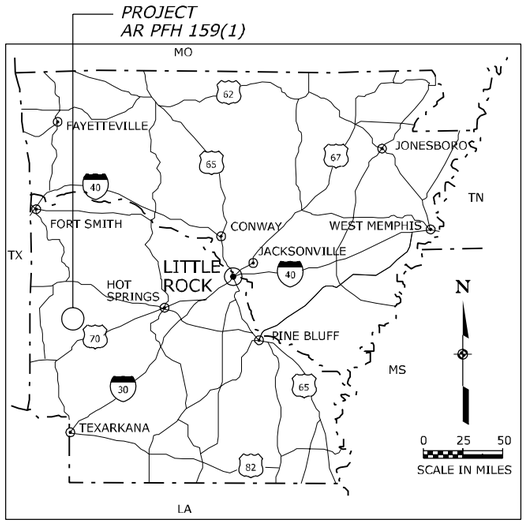
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
8	AR	AR PFH 159(1)	A01	29

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION



KEY MAP
STATE OF ARKANSAS

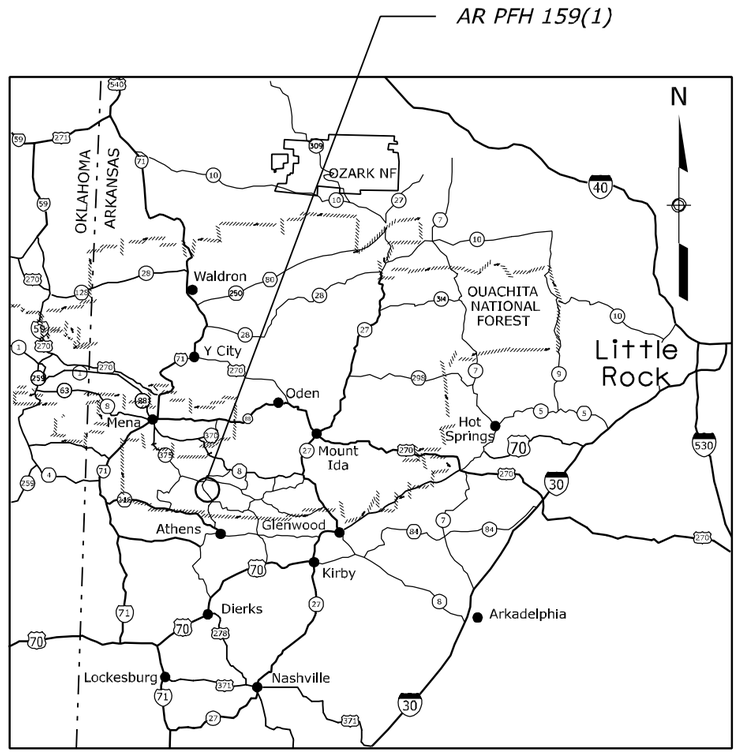
PLANS FOR PROPOSED

PROJECT AR PFH 159(1)

RECONSTRUCTION OF RETAINING WALL
AND OTHER MISCELLANEOUS WORK

OUACHITA NATIONAL FOREST

POLK COUNTY, ARKANSAS



INDEX TO SHEETS

DESCRIPTION OF PROJECT

IMPROVEMENT: Retaining wall, aggregate base and other miscellaneous work.

PROJECT LENGTH: 130 Feet

ROAD: Caddo Road (CR-64)

DESIGN DESIGNATION:

ADT (2001)	<100
ADT (2028)	200
DHV	15
D	50/50
%Truck	N/A
V (MPH)	30
C/A	None
e(max)	8%

SPECIFICATIONS:

"Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects", FP-03 U.S.Customary Units.

PLANS PREPARED BY

U.S. Department of Transportation
Federal Highway Administration

EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA
MARCH, 2008

PROJECT MANAGER	LEAD DESIGNER
JEFF JOHNSON	MESERET YIGEZU

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Abutment	Abut.
Aggregate	aggr.
Ahead	AH
Alternate	alt.
Average daily traffic	ADT
Back	BK
Balance point	BP
Bearing	brg.
Begining	beg.
Bench mark	BM
Centerline	
Center to center	cc, c-c or c. to c.
Centers	ctrs.
Clear	clr.
Column	col.
Connection	conn.
Construction joint	Constr. jt.
Continuous	cont.
Corrugated metal pipe	CMP
Culvert	culv.
Curve centeral angle (spiral curve transitions)	Δ_c
Curve total angle (curve delta or deflection)	Δ
Design hourly volume	DHV
Design speed	V
Diagonal	diag.
Diameter	D, dia., or
Diaphragm	diaph.
Distance	dist.
Drawing(s)	dwg(s), or drwg(s)
Drop Inlet	DI
East	E
Edge of pavement	EP or EOP
Elevation	elev.
Elevation with number	El. 94.161 [El. 94.16]
Embankment	emb.
End section	ES
Equation	EQ or eq.
Excavation	exc.
Expansion joint	exp. jt.
Finish	fin.
Flange	flg.
Footing	ftg.
Galvanized	galv.
Gage(gauge)	ga.
Headwall	hdwl.
Hexagon	hex.
High water	HW
Inside diameter	ID
Joint	jt.
Lamination	lam.
Latitude	lat.
Left	lt., Lt. or LT
Length of curve(simple curve)	L
Length of curve (spiral curve transision)	Lc
Length of spiral	Ls
Longitudinal(longitude)	long.
Low water	LW
Mainline	M.L.
Material	matl.
Maximum	max.
Mile[Kilometer] post	M.P[K.P.]
Minimum	min.
Monument	mon.
Mechanically stabilized embankment	MSE
Original groung	OG
Out to out	o. to o.
Outside diameter	OD
On centers	o. c.
Normal crown	NC or NCR
North	N
Pavement	pvmt.
Plate	pl.
Point of compound curve	PCC
Point of curve	PC
Point of curve to spiral	PCS or CS
Point of intersection	PI
Point of spiral to curve	PSC or SC
Point of spiral to reverse spiral	SRS
Point of spiral to tangent	PST or ST
Point of tangent	PT
Point of tangent to spiral	PS or TS
Point on curve	POC
Point on spiral	POS
Point on tangent	POT
Radius	R
Range	R.
Reinforcement (reinforced)	reinf.
Required	reqd.
Right	Rt., rt.or RT
Right-of-way	R/W
Roadway	Rdwy.
Route	Rte.
Section	Sec.
South	S
Spacing, spaces or spaced	spa.
Spiral central angle	s
Standard	std.
Station	Sta.
Stiffener	stiff.
Stringer	stgr.
Structure	struc.
Superelevation rate	e
Symmetrical	sym.
Tangent distance (tangent length)	T
Tangent distance (spiral curve transision)	Ts
Temporary benchmark	TBM
Temporary construction easement	TCE
Thread	thd.
Township	T.
Typical	typ.
Vehicle per hour	vph
Vertical point of intersection	VPI
West	W

NATIONAL BOUNDARY

STATE BOUNDARY

COUNTY BOUNDARY

CITY BOUNDARY

TOWNSHIP or RANGE LINE

SECTION LINE

1/4 SECTION LINE

1/16 SECTION LINE

NATIONAL PARK or FOREST BOUNDARY

PROPERTY LINE — P/L

TRAVERSE POINT (Horizontal & Vertical) Top of Triangle Points North — T-45, 2,645.9

TRAVERSE POINT (Horizontal) — T-3

BRASS CAP

STEEL PIN

HUB & TACK

SPOT ELEVATION — x 99.9

COORDINATE GRID TICK

	EXISTING	PROPOSED
RIGHT-OF-WAY LINE	R/W	R/W
RIGHT-OF-WAY LINE with MONUMENT	R/W	R/W
SECTION CORNER	FOUND 36 31 1 6	PROJECTED 36 31 1 6
1/4 SECTION CORNER	15 22	15 22
1/16 SECTION		
PROPERTY CORNER		No Symbol
PARCEL NUMBER	No Symbol	400
EASEMENT (Permanent - Construction)	P/E	C/E
ROUTE NUMBERS	26 INTERSTATE	25 U.S.
	694 STATE	

SLOPE STAKE — TOP OF CUT, TOE OF FILL, TRANSITION

ROADWAY, EXISTING

RAILROAD — SINGLE TRACK, MULTIPLE TRACK

TRAIL

INTERMITTENT DRAINAGE/ SMALL CREEK

SPRING

LARGE CREEK/RIVER

LAKE, POND or RESERVOIR; MARSHLAND

PAVEMENT REMOVAL/ROADWAY OBLITERATION

AREA PATTERN

FULL DEPTH PAVEMENT

SIDEWALK ASPHALT/CONCRETE

MILL AND OVERLAY

OVERLAY

SILT FENCE — SF, DB

DIVERSION BERM

DIVERSION CHANNEL

CHECK DAM

RIPRAP/CULVERT RIPRAP

BORING LOCATION — B-1

TEST PIT — TP-1

NORTH ARROW — N

MATERIAL SOURCE

REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	A02

	EXISTING	PROPOSED
FENCE	x x	xx xx
GATE with FENCE	x x	xx xx
CATTLEGUARD		
GUARDRAIL		
MEDIAN & SIDE (CONCRETE) BARRIER		
SIGNS — POST MOUNTED		
SIGNS — PORTABLE	No Symbol	
RETAINING WALL		wall face
OVERHEAD(POWER POLE) UTILITIES P=Electrical for transmission line E=Electrical for distribution line T=Telephone, E&T=Joint Electrical and Telephone FO=Fibre optics	P	P
SUPPORT POLE with ANCHOR		
TELEPHONE BOOTH or PEDESTAL	TB or TP	TB or TP
STREET LIGHT	or	or
UNDERGROUND UTILITIES G=gas, O=oil, P=power, SA=sanitary sewer, SS=storm sewer, T=telephone, W=water E=electrical, FO=fibre optics	W	W
BRIDGE		
PIPE CULVERT (arrow shows flow)		
PIPE CULVERT with END SECTION		
PIPE CULVERT with HEADWALL		
CULVERT with DROP INLET		
BOX CULVERT		
UNDERDRAIN	UD	UD
BUILDING		
TREELINE; TREE		

PROJECT SPECIFIC SYMBOLS AND ABBREVIATIONS:-

COUNTY ROADS — 64

FOREST ROADS — 38

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

Ouachita National Forest

CONVENTIONAL SYMBOLS AND ABBREVIATIONS

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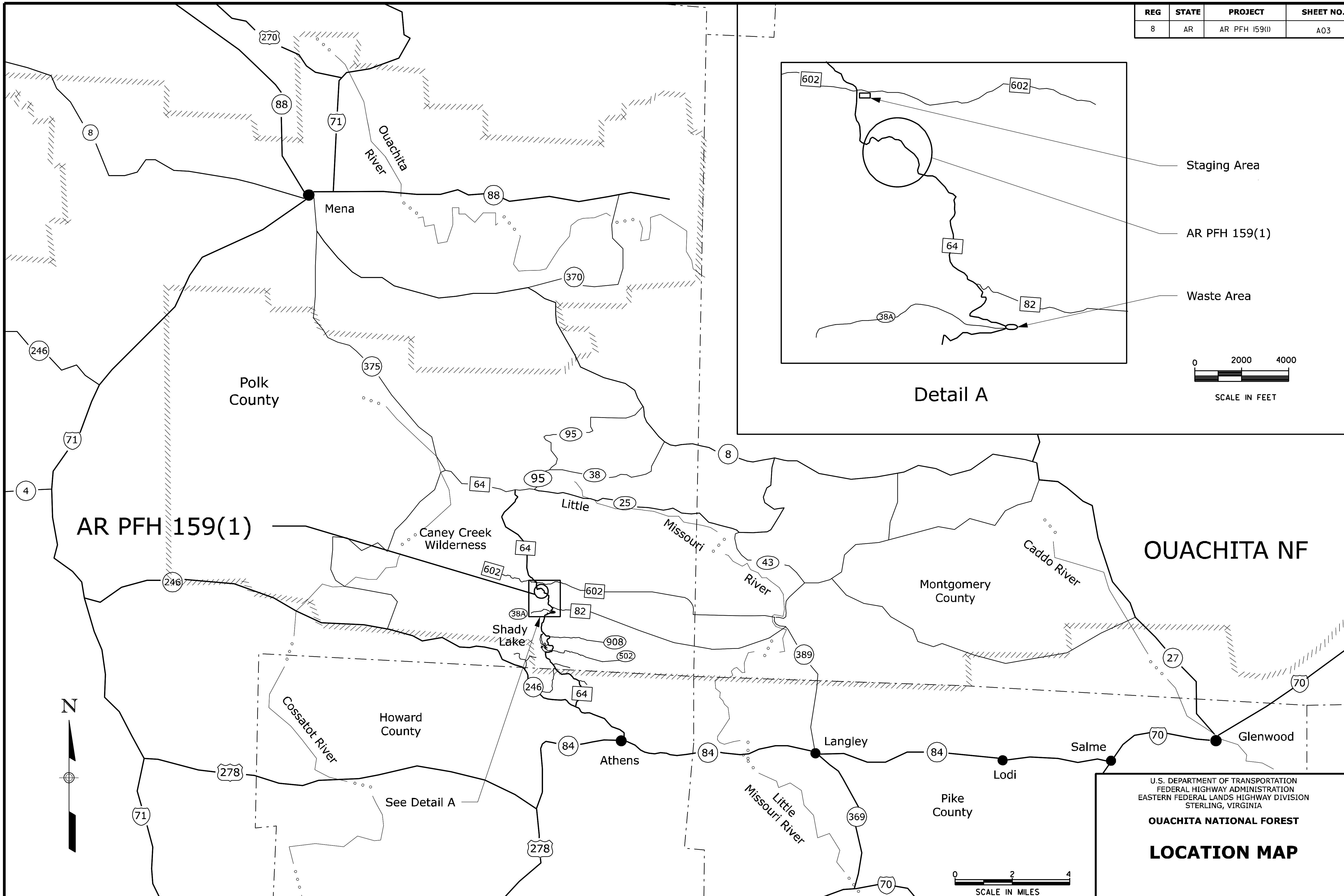
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	A03

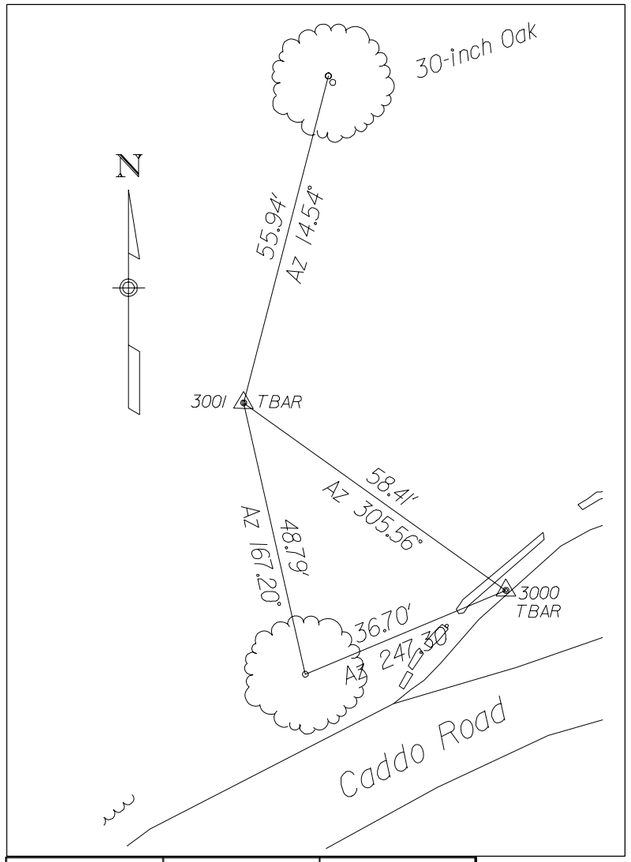

Detail A
Staging Area
AR PFH 159(1)
Waste Area
602
602
64
82
38A
0
2000
4000
SCALE IN FEET
OUACHITA NF
AR PFH 159(1)
Mena
Polk
County
Ouachita
River
Caney Creek
Wilderness
Little
Missouri
River
Shady
Lake
Montgomery
County
Caddo River
Howard
County
Cossatot River
See Detail A
Athens
Langley
Lodi
Salme
Glenwood
Pike
County
Little
Missouri River
270
88
71
8
88
370
246
375
71
4
95
38
95
64
25
64
602
602
82
38A
43
908
502
389
246
64
27
70
70
84
84
84
278
71
278
369
70
N
0
2
4
SCALE IN MILES

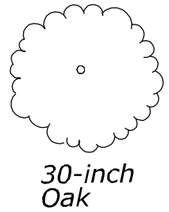
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

OUACHITA NATIONAL FOREST

LOCATION MAP

REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	A04



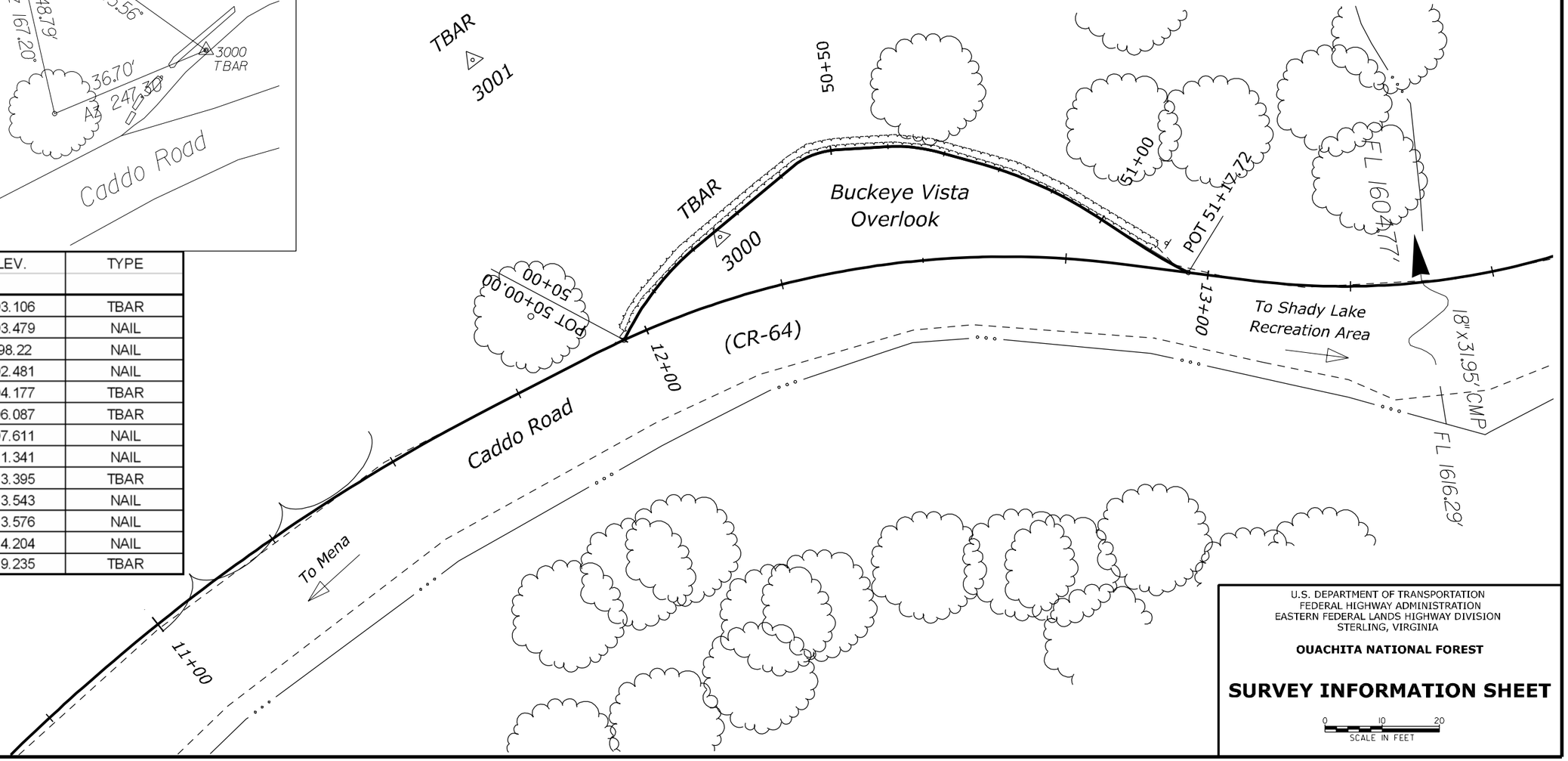


Coordinate System	: US State Plane 1983(at ground)
Zone	: Arkansas South 0302
Datum	: NAD 1983 (Conus)
Ellipsoid Name	: Geodetic Ref System 1980
Geoid Model	: GEOID03 (Conus)
Ground scale factor	: 0.9963851842

Coordinate Listing at Ground

Point	Northing	Easting	Elevation	Remarks
3000	1946913.976	696449.573	1609.236	TBAR
3001	1946944.910	696406.310	1585.136	TBAR

STATION	ELEV.	TYPE
10+46.943	1593.106	TBAR
10+50.000	1593.479	NAIL
11+00.000	1598.22	NAIL
11+50.000	1602.481	NAIL
11+70.328	1604.177	TBAR
11+88.418	1606.087	TBAR
12+00.000	1607.611	NAIL
12+50.000	1611.341	NAIL
12+84.726	1613.395	TBAR
13+00.000	1613.543	NAIL
13+07.447	1613.576	NAIL
13+50.000	1614.204	NAIL
14+04.583	1619.235	TBAR



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FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

OUACHITA NATIONAL FOREST

SURVEY INFORMATION SHEET

0 10 20
SCALE IN FEET

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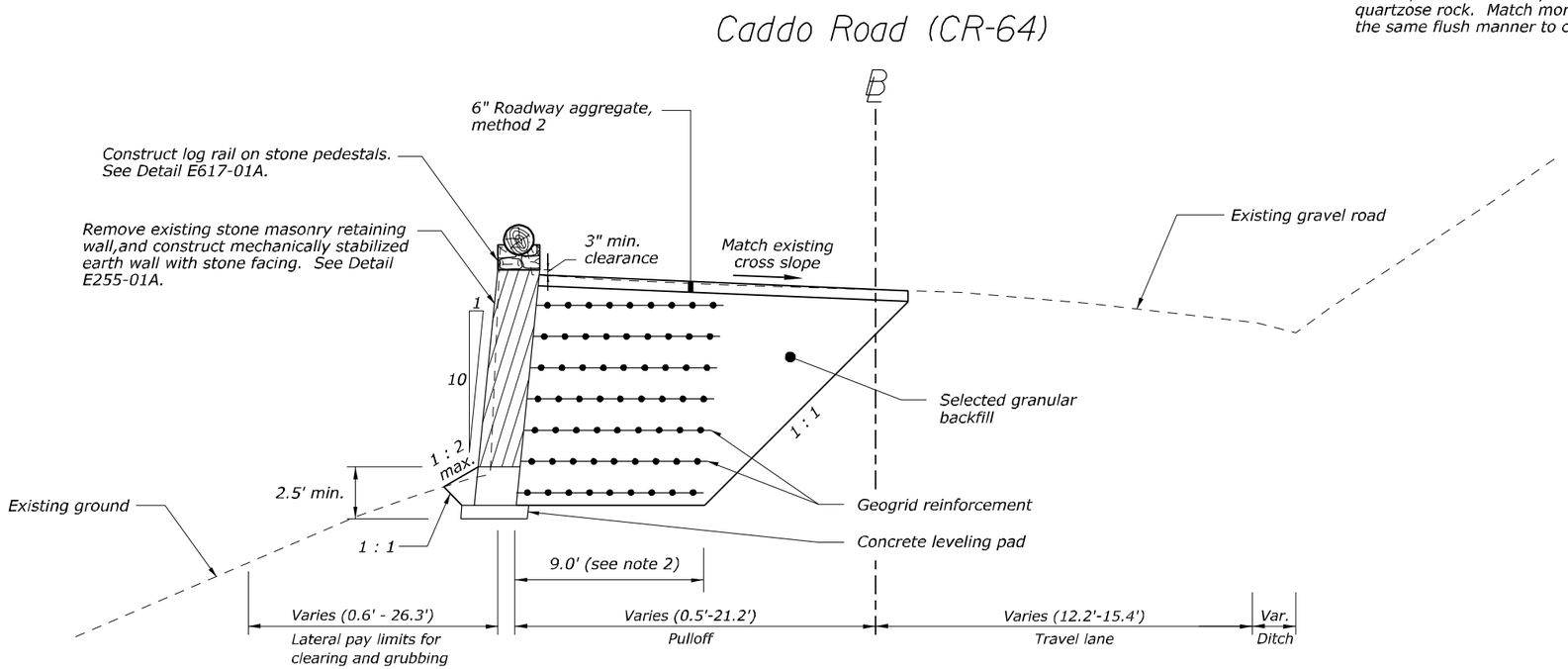
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	B01

NOTES:

1. *Place topsoil a minimum depth of 2-inches on all disturbed areas except the gravel pull-off area per Section 624, and establish turf in accordance with Section 625.*
2. *Construct geogrid reinforcement with a minimum embedment length of 4.0 feet in areas where the maximum height of the retained soil is equal to or less than 4.0 feet.*
3. *Remove and salvage existing stone from stone masonry retaining wall, and construct mechanically stabilized earth wall. Use the salvaged stones to construct the stone facing, using existing stones to the maximum extent possible. For any additional stone, use a similar sized and colored quartzose rock. Match mortar color to the existing mortar, and mortar in the same flush manner to create the same appearance as the existing wall.*



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FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

OUACHITA NATIONAL FOREST

TYPICAL SECTION

NO SCALE

REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	C01

PLAN SHEET SECTION -------->>				ESTIMATED QUANTITIES	
ITEM	DESCRIPTION	UNIT		PLAN	BID SCHEDULE
15101-0000	MOBILIZATION	LPSM		ALL	ALL
15201-0000	CONSTRUCTION SURVEY AND STAKING	LPSM		ALL	ALL
15401-0000	CONTRACTOR TESTING	LPSM		ALL	ALL
15705-0100	SOIL EROSION CONTROL, SILT FENCE	LNFT	190	190	190
15705-0500	SOIL EROSION CONTROL, TEMPORARY CULVERT PIPE (12" FLEXIBLE PLASTIC)	LNFT	130	130	130
15706-0200	SOIL EROSION CONTROL, CHECK DAM	EACH	2	2	3
20103-0000	CLEARING AND GRUBBING	SQYD	210	210	210
20303-3500	REMOVAL OF STONE MASONRY	SQYD	90	90	90
20701-1000	EARTHWORK GEOTEXTILE, TYPE III-A	SQYD	110	110	110
20703-0000	GEOGRID	SQYD	1000	1000	1,000
20801-0000	STRUCTURE EXCAVATION	CUYD	600	600	600
25501-1000	MECHANICALLY STABILIZED EARTH WALL, WELDED WIRE FACE	SQFT	1200	1200	1,200
25510-0000	SELECT GRANULAR BACKFILL	CUYD	500	500	500
30802-2000	ROADWAY AGGREGATE, METHOD 2	TON	100	100	100
60101-0000	CONCRETE (MSE WALL)	CUYD	20	20	20
60501-0000	STANDARD UNDERDRAIN SYSTEM	LNFT	140	140	140
60504-0000	GEOCOMPOSITE SHEET DRAIN SYSTEM (MSE WALL)	SQYD	90	90	90
61701-4400	GUARDRAIL SYSTEM SBLG (LOGRAIL ON STONE PEDESTAL)	LNFT	130	130	130
62002-0000	STONE MASONRY	SQYD	110	110	110
62401-0100	FURNISHING AND PLACING TOPSOIL, 2-INCH DEPTH	SQYD	520	520	520
62502-0000	TURF ESTABLISHMENT	SQYD	520	520	520
62901-0500	ROLLED EROSION CONTROL PRODUCT, TYPE 2.A	SQYD	210	210	210
63316-1000	REMOVE AND RESET SIGN	EACH	1	1	1
63502-1300	TEMPORARY TRAFFIC CONTROL, DRUM	EACH	12	12	12
63503-0400	TEMPORARY TRAFFIC CONTROL, CONCRETE BARRIER	LNFT	130	130	130
63504-1000	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	SQFT	100	100	100
63506-0500	TEMPORARY TRAFFIC CONTROL, FLAGGER	HOUR	400	400	400

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

OUACHITA NATIONAL FOREST

TABULATION OF QUANTITIES

NO SCALE

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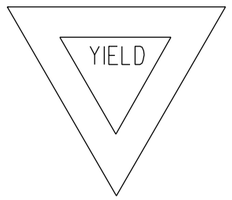
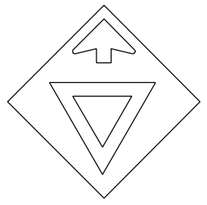
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	C02

Sign No.	Text No.	Sign Text	LOCATION		PANEL SIZE						TEXT SIZE				Color Combination	Quantity	Total Area (sq ft)	(No Pay) Support (ft)	Remarks
			Station	Side	Width (in.)	Height (in.)	Area (sq ft)	Corner Radii (in.)	Border Width (in.)	Margin Width (in.)	Numbers (in.)	Upper Case (in.)	Lower Case (in.)	Series					
1	RI-2		See Note 3		36	36	3.9	←			See Note 2			→	Red on White	2	7.8	2(16) =32	Single 4" x 4" post
2	RI-2a	TO ONCOMING TRAFFIC	See Note 3		24	12	2	←			See Note 2			→	Black on White	2	4	-	Mount on sign #1
3	W3-2		See Note 3		36	36	9	←			See Note 2			→	Black on Orange	2	18	2(16) = 32	Single 4" x 4" post
4	W13-1	20 M.P.H.	See Note 3		24	24	4	←			See Note 2			→	Black on Orange	2	8	-	Mount under sign #7
5	W16-2	500 FEET	See Note 3		24	18	3	←			See Note 2			→	Black on Orange	2	6	-	Mount under sign #3 or 8
															Subtotal	8	43.8	64	

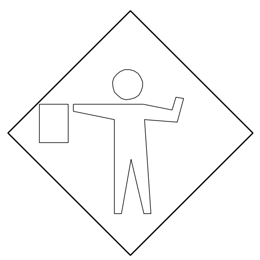
NOTES:

1. Install supports in accordance with Detail E635-01.
2. See "Manual on Uniform Traffic Control Devices, 2003 Edition" and "Standard Highway Signs" for dimensions.
3. See Details 635-6, E635-07A and E635-13.
4. See Temporary Traffic Control Plan.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

OUACHITA NATIONAL FOREST

CONSTRUCTION SIGN SCHEDULE

Sign No.	Text No.	Sign Text	LOCATION Station	LOCATION Side	PANEL SIZE Width (in.)	PANEL SIZE Height (in.)	PANEL SIZE Area (sq ft)	PANEL SIZE Corner Radii (in.)	PANEL SIZE Border Width (in.)	PANEL SIZE Margin Width (in.)	TEXT SIZE Numbers (in.)	TEXT SIZE Upper Case (in.)	TEXT SIZE Lower Case (in.)	TEXT SIZE Series	Color Combination	Quantity	Total Area (sq ft)	(No Pay) Support (ft)	Remarks
6	W20-1		See Note 3		36	36	9	← See Note 2 →							Black on Orange	2	18	2(16) = 32	Single 4" x 4" post
7	W20-4		See Note 3		36	36	9	← See Note 2 →							Black on Orange	2	18	-	Portable Sign
8	W20-7a		See Note 3		36	36	9	← See Note 2 →							Black on Orange	2	18	-	Portable Sign

	Quantity	Total Area (sq ft)	(No Pay) Support (ft)
Subtotal	6	54	32
Total	14	97.8	96
Rounded Total	15	100	100

NOTES:

1. Install supports in accordance with Detail E635-01.
2. See "Manual on Uniform Traffic Control Devices, 2003 Edition" and "Standard Highway Signs" for dimensions.
3. See Details 635-6, E635-07A and E635-13.
4. See Temporary Traffic Control Plan.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

OUACHITA NATIONAL FOREST

CONSTRUCTION SIGN SCHEDULE

REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	D01

Curve Data Retaining Wall

Curve = WALL-1
PI 50+11.78
Δ= 22° 14' 25" (RT)
R = 48.00'
T = 9.43'
L = 18.63'

Curve = WALL-2
PI 50+46.82
Δ= 35° 56' 36" (RT)
R = 13.00'
T = 4.22'
L = 8.16'

Curve = WALL-3
PI 50+64.20
Δ= 18° 52' 10" (RT)
R = 28.00'
T = 4.65'
L = 9.22'

Curve = WALL-4
PI 50+86.38
Δ= 16° 27' 13" (RT)
R = 78.00'
T = 11.28'
L = 22.40'

Construct 1,200 sq. ft. mechanically stabilized earth wall with stone facing

Remove 90 sq. yd. of existing stone masonry retaining wall and guardwall

Construct 130 ft. guardrail system SBLG (log rail on stone pedestal)

+ 12+10 Caddo Road = 50+18 Retaining wall

Begin 9' geogrid embedment length

End 4' geogrid embedment length

+ 11+98.8 Caddo Road = 50+04.0 Retaining wall

+ 11+96 Caddo Road = 50+00 Retaining wall

Begin mechanically stabilized earth wall

+ 12+70 Caddo Road = 50+88 Retaining wall

End 9' geogrid embedment length

Begin 4' geogrid embedment length

+ 12+91.2 Caddo Road = 51+11.0 Retaining wall

End mechanically stabilized earth wall

+ 12+97 Caddo Road = 51+18 Retaining wall

End 4' geogrid embedment length

Begin 4' geogrid embedment length

PC 50+42.60
PT 50+50.75
PC 50+59.55
PT 50+68.77
PC 50+75.10
PT 50+97.50
PT 50+20.97
PC 50+02.34
POT 50+00.00
POT 51+17.72
PC 11+88.42
PT 11+70.33
PT 12+84.73
PC 13+07.45

N 86° 14' 31" E
S 74° 53' 18" E
N 50° 17' 55" E
S 58° 26' 05" E
S 82° 44' 34" E
N 28° 03' 30" E
N 62° 46' 10" E

50+50
51+00
50+00
12+00
13+00

Curve = WALL-1
Curve = WALL-2
Curve = WALL-3
Curve = WALL-4
Curve = CADDO-2

Construction B/L

Buckeye Vista Overlook

Caddo Road (CR-64)

15.4 ft.
12.5 ft.

1605
1610
1615
1620

To Mena

To Shady Lake Recreation Area

N

Curve Data Caddo Road

Curve = CADDO-2
PI 12+38.08
D= 34° 29' 16" (RT)
R = 160.00'
T = 49.66'
L = 96.31'

Note:

Caddo Road baseline was staked in April 1, 2008.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

OUACHITA NATIONAL FOREST

CONSTRUCTION PLAN

0 5 10
SCALE IN FEET

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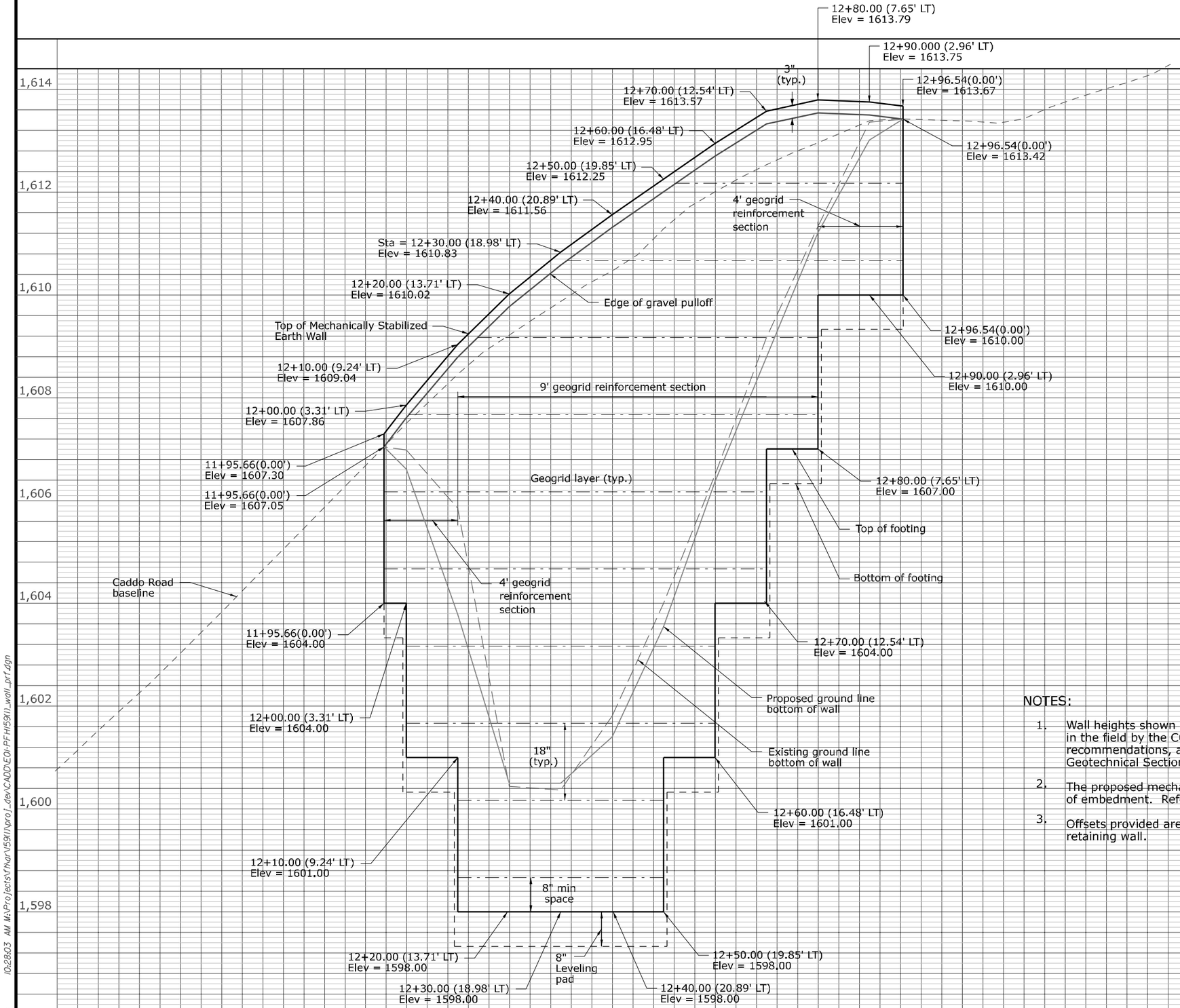
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	E01



NOTES:

1. Wall heights shown are maximum wall heights. The wall heights may be reduced in the field by the CO in accordance with the Geotechnical foundation recommendations, applicable soil boring logs, and consultation with the EFLHD's Geotechnical Section.
2. The proposed mechanically stabilized earth retaining wall has a minimum of 2.5' of embedment. Refer to detail E255-01A.
3. Offsets provided are for the back of the proposed mechanically stabilized earth retaining wall.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

OUACHITA NATIONAL FOREST

WALL PROFILE

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REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	M01

I. EROSION AND SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION

This project will include reconstructing a retaining wall, restoring gravel surface, and other miscellaneous work at the Buckeye Vista Overlook on Caddo Road (CR-64). This site is located in the Ouachita National Forest, Polk County, Arkansas.

EXISITING CONDITIONS

The overlook is currently unpaved, and will remain unpaved. The terrain is mountainous.

CRITICAL AREAS

The land disturbances in the retaining wall area and pull-off area are considered critical areas that require installation of perimeter control (silt fence, check dams and temporary culvert) to control erosion and sediment.

SEQUENCE OF CONSTRUCTION

Obtain the CO's approval for any revisions to the sequence of construction.

1. Clear and grub those areas necessary for installation of perimeter sediment controls.
2. Prior to any land disturbance, install all erosion control perimeter according to the erosion control plan.
3. Remove the existing stone retaining wall and construct mechanically stabilized earth wall with stone facing.
4. Stabilize finished slopes and other disturbed areas, including any soil disturbed as a result of removal of sediment controls.

II. EROSION AND SEDIMENT CONTROL MEASURES

STRUCTURAL MEASURES WILL INCLUDE

Silt Fence (157.05): A system of silt fence is proposed for filtering runoff from disturbed areas before it enters any environmentally sensitive areas.

Temporary culvert (157.09): A system of temporary 12" culvert (flexible plastic) is proposed to convey clean water from offsite through the work zone to an existing roadside ditch along Caddo Road.

Temporary Check Dam (157.10): A system of temporary check dams (riprap class I) are proposed for filtering runoff and reducing the velocity of runoff in the existing ditches before it enters any environmentally sensitive areas.

VEGETATIVE MEASURES WILL INCLUDE

Following initial soil disturbance or redisturbance, complete permanent or temporary stabilization within seven (7) calendar days on the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes greater than 1 vertical to 2 horizontal (1:2); and within fourteen (14) calendar days on all other disturbed or graded areas on the project site.

MAINTENANCE

Unless stated otherwise, construct and maintain all vegetative and structural erosion control practices according to the FP-03, Section 157.

Inspect all erosion and sediment control measures weekly, or more frequently where specified in the plans or directed by the CO, and after each significant rainfall. Identify any damaged devices and assess the adequacy of the erosion control plan. Repair or replace all damaged erosion and sediment control devices by the end of the day. Submit suggested improvements to the erosion control plan to the CO for approval. Document the inspections according to Subsection 107.01.

Silt Fence: Check silt fence for undermining or deterioration of the fabric. Remove the accumulated sediment in order to ensure proper functioning of the silt fence installation.

Temporary Culvert (157.09): Check temporary culvert for undermining or deterioration. Repair or replace damaged temporary culvert to ensure proper functioning of the temporary culvert installation.

Temporary Check Dam: Check temporary check dam for undermining or deterioration. Remove the accumulated sediment and rearrange the riprap in order to ensure proper functioning of the check dams.

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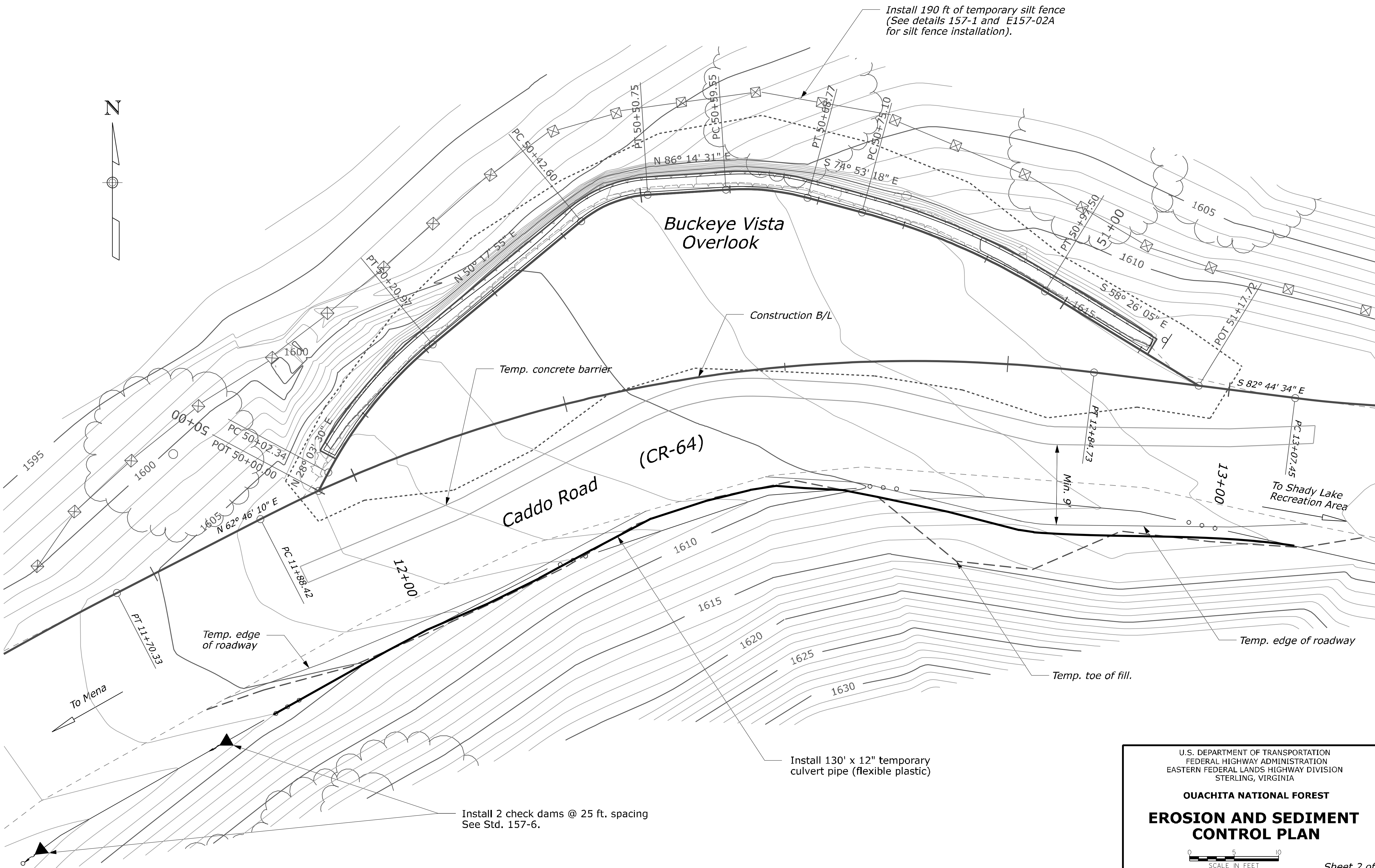
STERLING, VIRGINIA

OUACHITA NATIONAL FOREST

EROSION AND SEDIMENT CONTROL NARRATIVE

REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	M02



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U.S. DEPARTMENT OF TRANSPORTATION
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EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

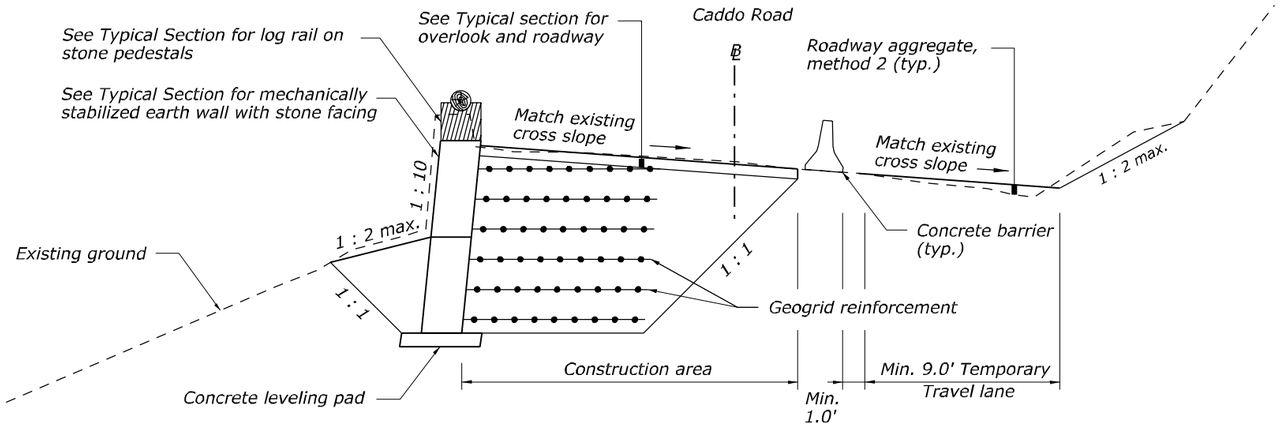
OUACHITA NATIONAL FOREST

EROSION AND SEDIMENT CONTROL PLAN

0 5 10
SCALE IN FEET

Sheet 2 of 2

REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	N01



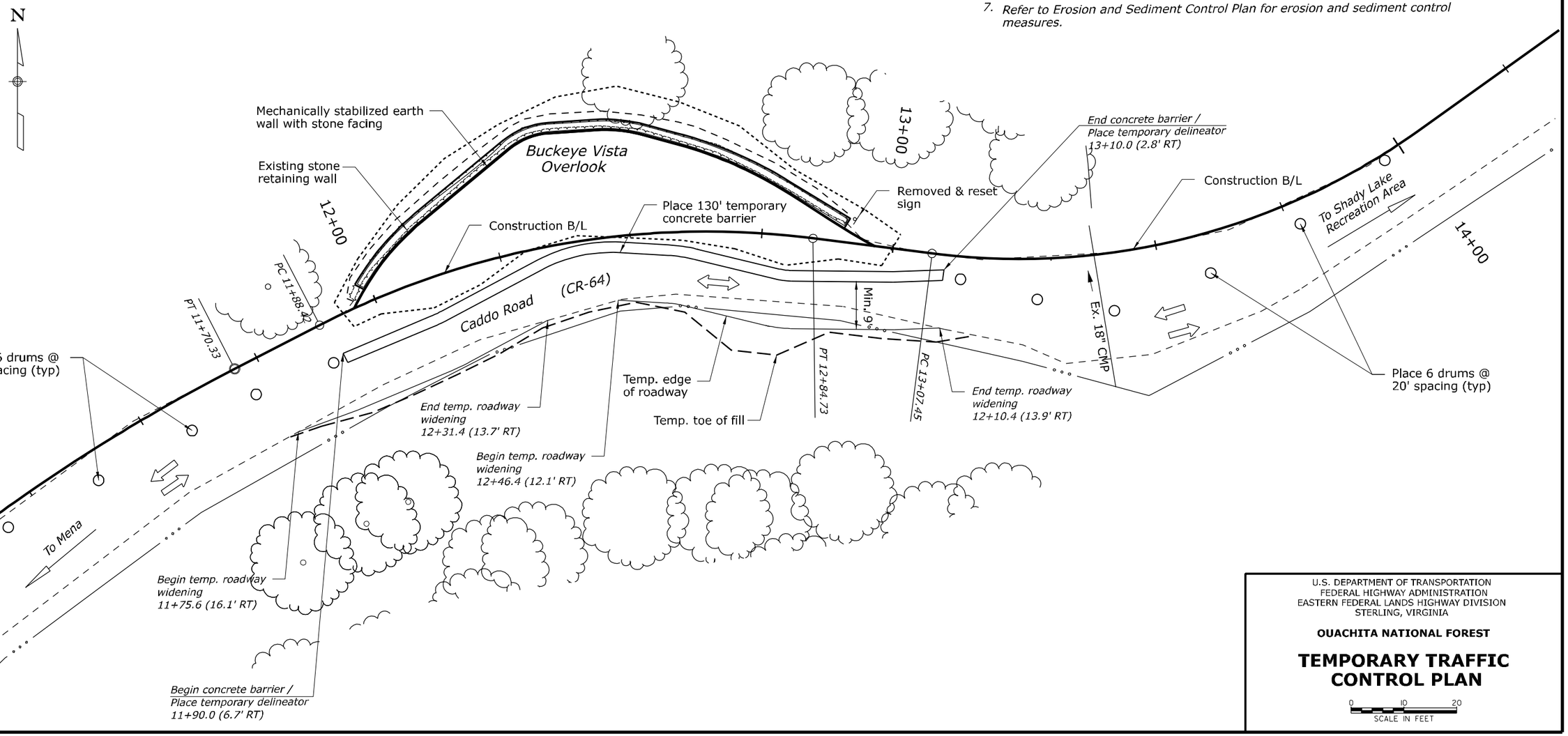
Temporary Widening Areas

GENERAL NOTES

Adapt the traffic control plans, when directed by the CO, to meet the field conditions to provide safe and efficient traffic movement.

The following general notes apply at all times for the duration of the construction project, except when otherwise noted in the plan, or directed by the CO.

1. *The CO will approve the final locations and spacing of all traffic control devices.*
2. *Maintain traffic through the work zone at all times in accordance with Section 156.*
3. *See details 635-6 and 635-13 for temporary construction sign locations and traffic control device layouts.*
4. *Maintain traffic through the work zone using single lane closure layout with flagger for work periods.*
5. *See detail E635-07A for temporary traffic control sign locations and traffic control device layouts for non-work periods.*
6. *Cover or removed all conflicting signs as directed by CO.*
7. *Refer to Erosion and Sediment Control Plan for erosion and sediment control measures.*



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EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

OUACHITA NATIONAL FOREST

TEMPORARY TRAFFIC CONTROL PLAN

0 10 20
SCALE IN FEET

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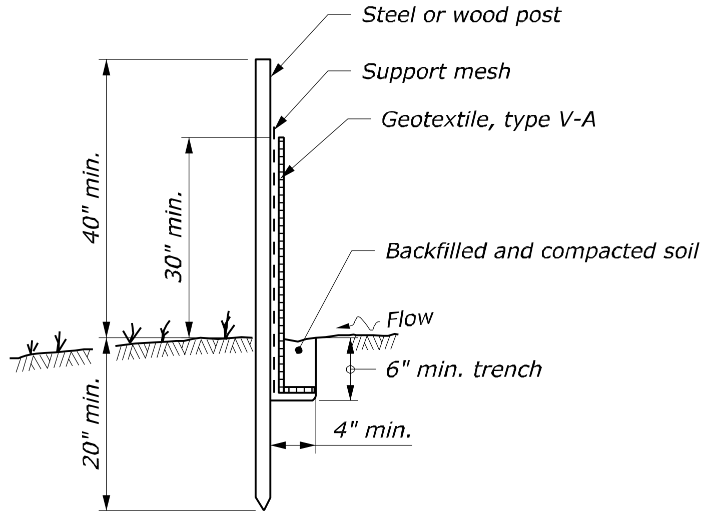
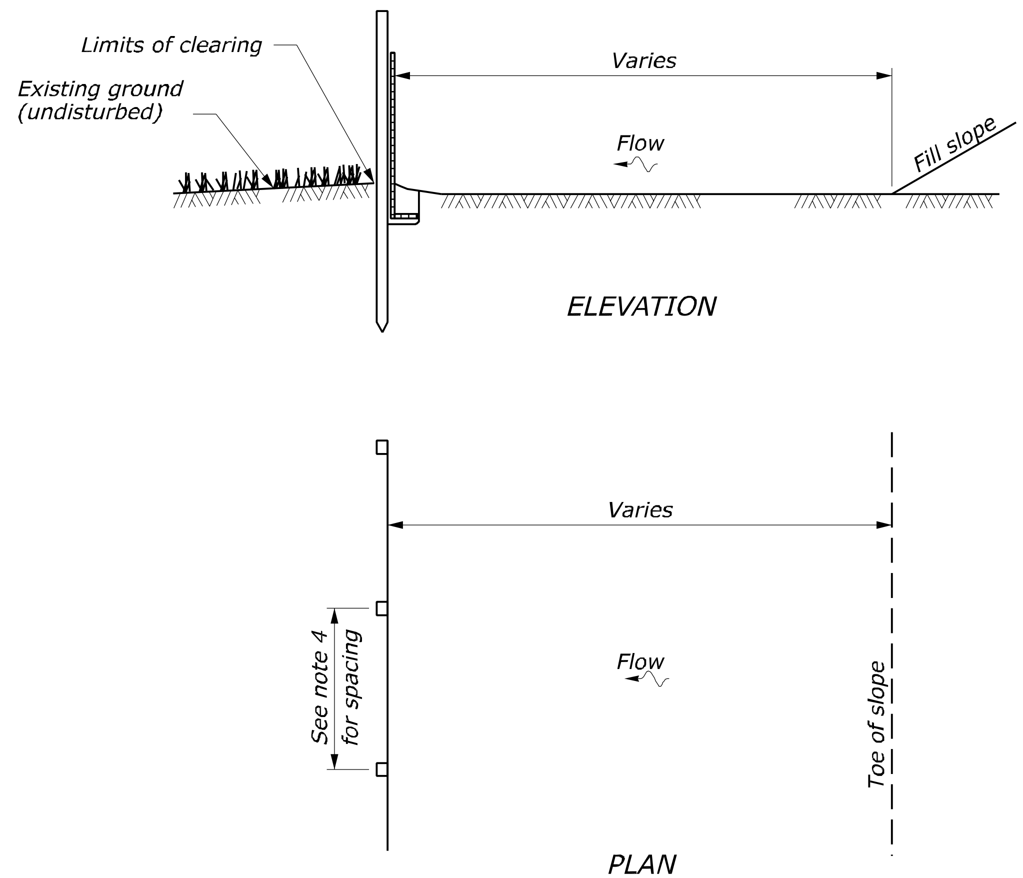
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	S01



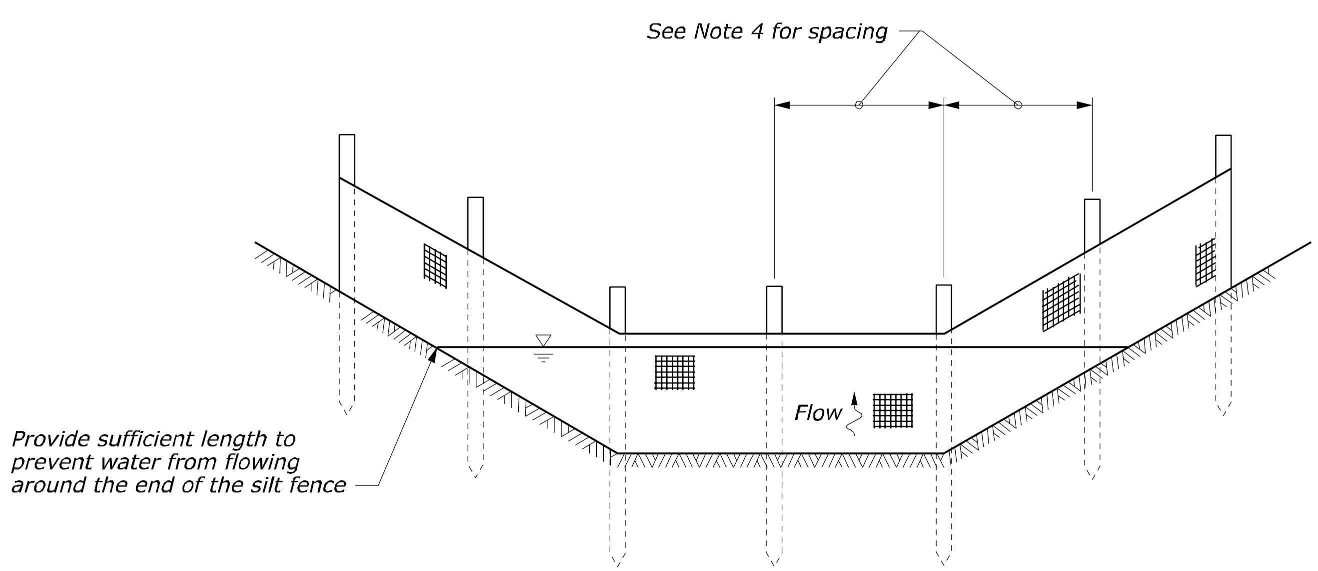
POST AND GEOTEXTILE INSTALLATION DETAIL



SILT FENCE INSTALLATION AT TOE OF FILL

NOTE:

1. Use drainage ditch installation for low flow conditions only when specified on Erosion Control Plan.
2. Alternate preassembled silt fence options (geotextile, type V-B) will be allowed as long as specified dimensions are satisfied. Follow manufacturer's recommendations for installation procedures. All types must ensure silt fence remains attached to, and does not slide down, supporting posts.
3. Install silt fence along ground contours. Curve ends of silt fence upgrade to prevent water from running around the ends.
4. 10 ft. (max.) spacing with fence support.
   6 ft. (max.) spacing without fence support.



SILT FENCE INSTALLATION IN A DRAINAGE DITCH
See Note 1

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

SILT FENCE

STANDARD APPROVED FOR USE 6/2005
REVISED: 6/2007

STANDARD 157-1

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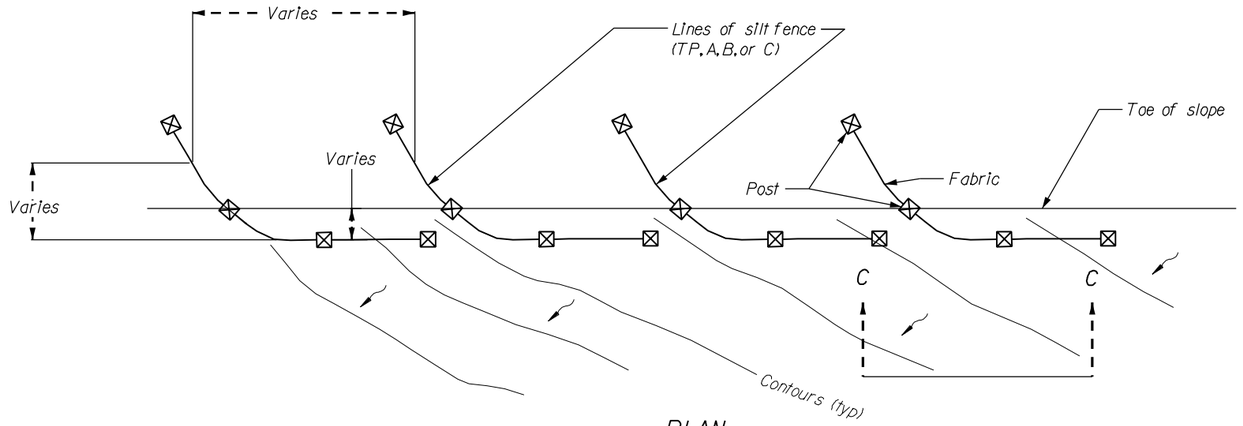
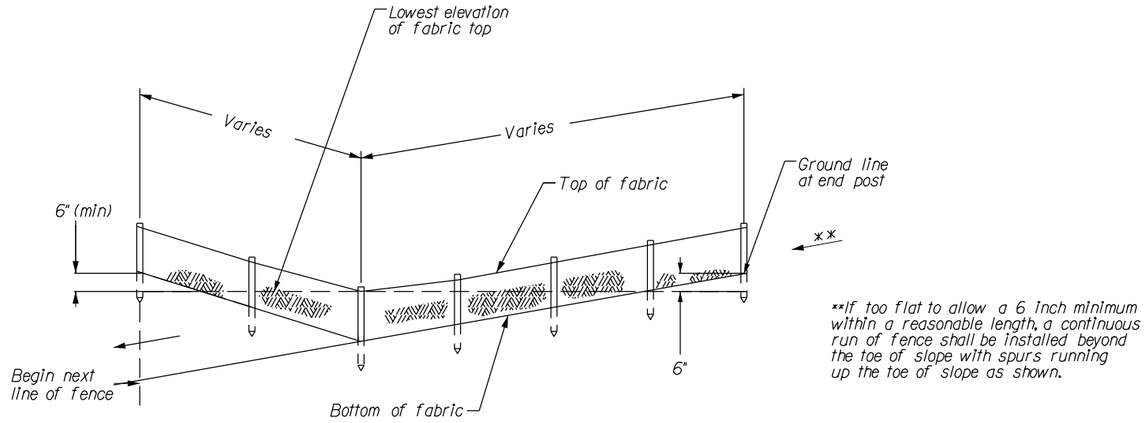
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	S02



PLAN



**If too flat to allow a 6 inch minimum within a reasonable length, a continuous run of fence shall be installed beyond the toe of slope with spurs running up the toe of slope as shown.

SECTION C-C

Notes:

1. See Standard Detail 157-1 for silt fence installation details.
2. Provide turn-ins where silt fence is shown running perpendicular to ground contours. Use small sections of silt fence to filter out sediment before run-off reaches a sag point or overtops the silt fence. Provide turn-ins and breaks as silt fence crosses temporary slope drains to keep excess water from building up against the silt fence.

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION

DETAIL

SILT FENCE (HOOKED)

DETAIL APPROVED FOR USE	DETAIL
REVISED:	EI57-02A

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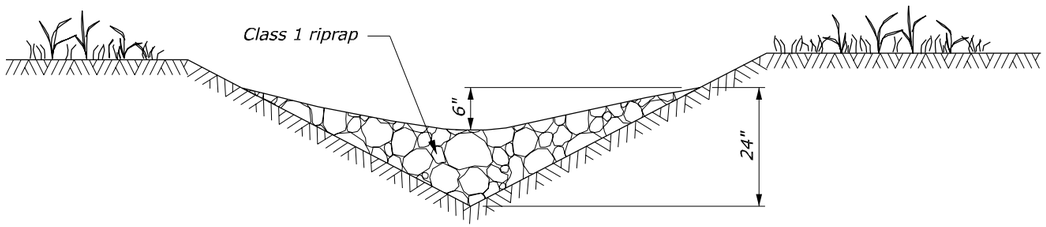
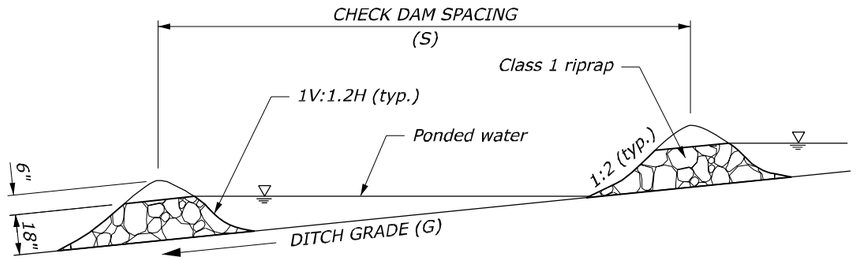
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	S03



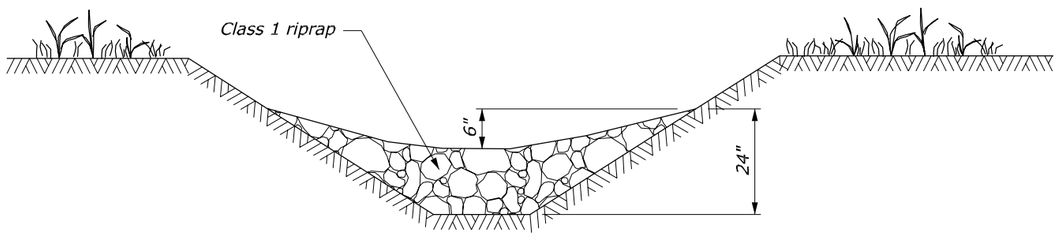
CROSS SECTION

V DITCH



PROFILE VIEW

DITCH



CROSS SECTION

TRAPEZOIDAL DITCH

DITCH GRADE * (G)	CHECK DAM SPACING S (ft)
2%	75
3%	50
4%	40
5%	30
6%	25

* Do not use Check Dams below 2% or above 6% ditch grades

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

CHECK DAM

STANDARD APPROVED FOR USE 6/2005
REVISED: 6/2007

STANDARD
157-6

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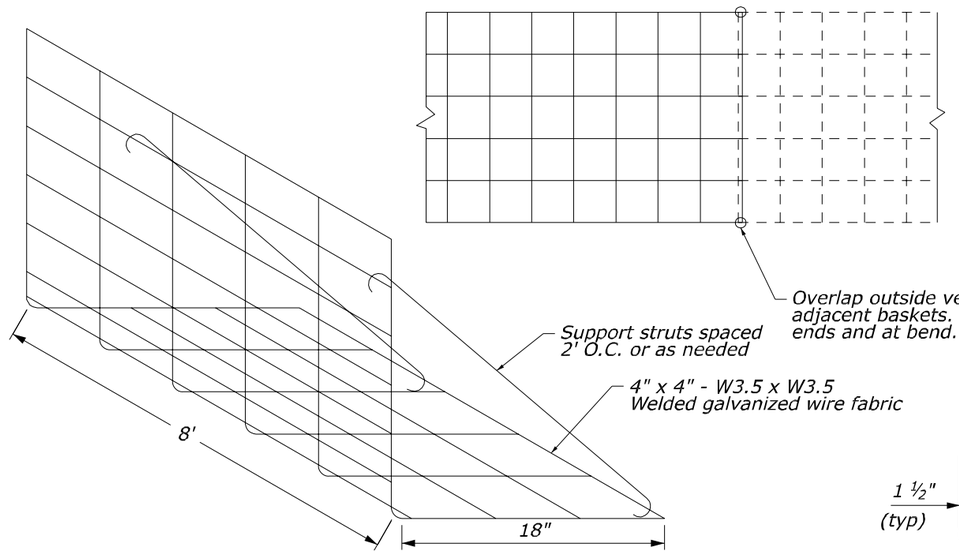
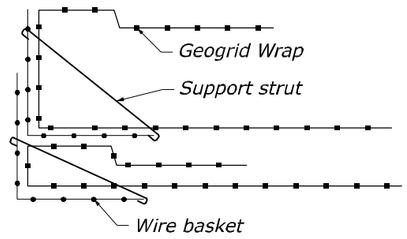
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	S04



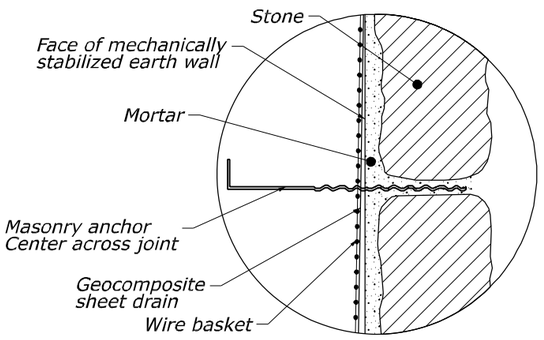
WIRE BASKET DETAIL



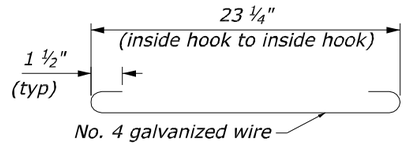
Notes:

1. Set topmost wire basket inside wire basket below.
2. Adjust height to follow grade of top of wall.

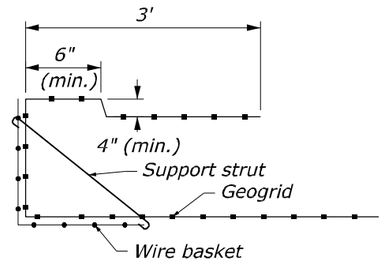
TOP WIRE BASKET DETAIL



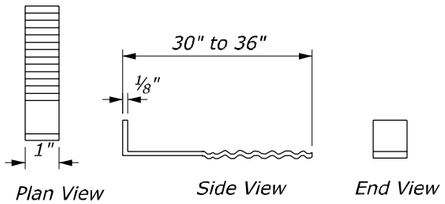
STONE MASONRY DETAIL



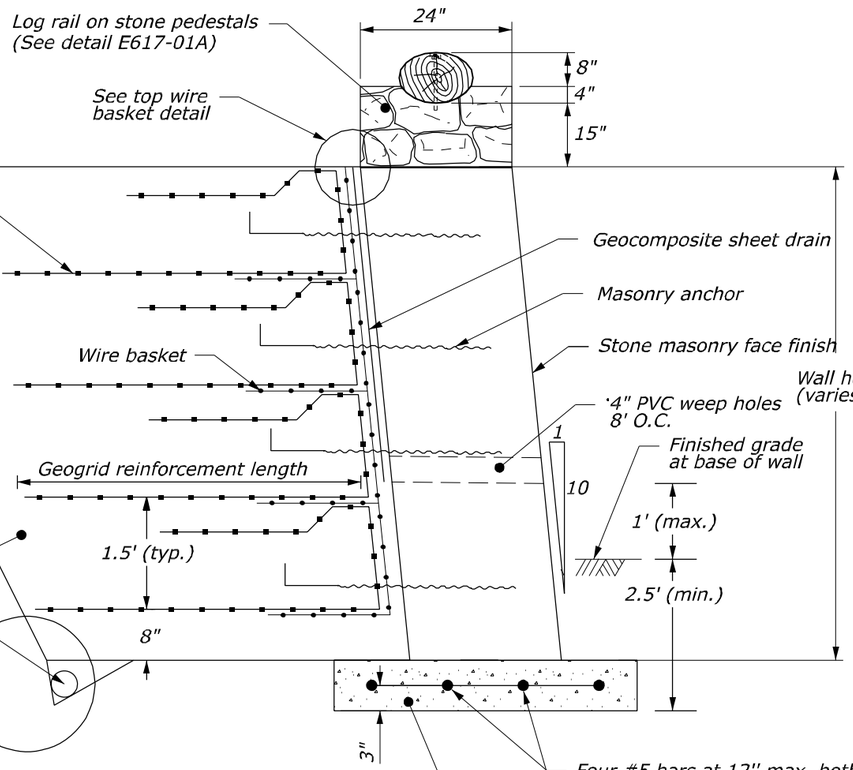
SUPPORT STRUT DETAIL



WIRE BASKET DETAIL



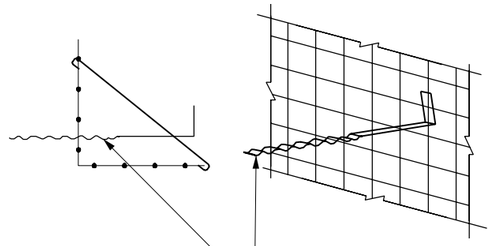
MASONRY ANCHOR DETAIL



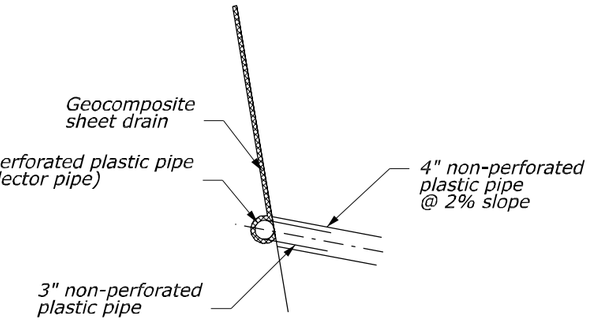
NOTES:

1. Outlet underdrain at low points or as directed by the CO.
2. Place Collection pipe at a mimimum 0.5% slope.

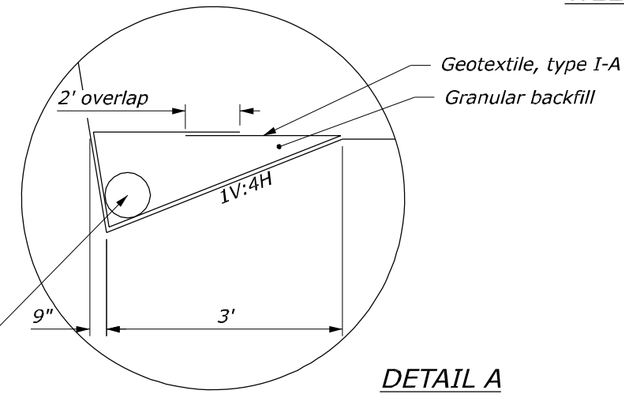
TYPICAL WALL SECTION



STONE FACING CONNECTION DETAIL



WEEP HOLE CONNECTION DETAIL



DETAIL A

NO SCALE

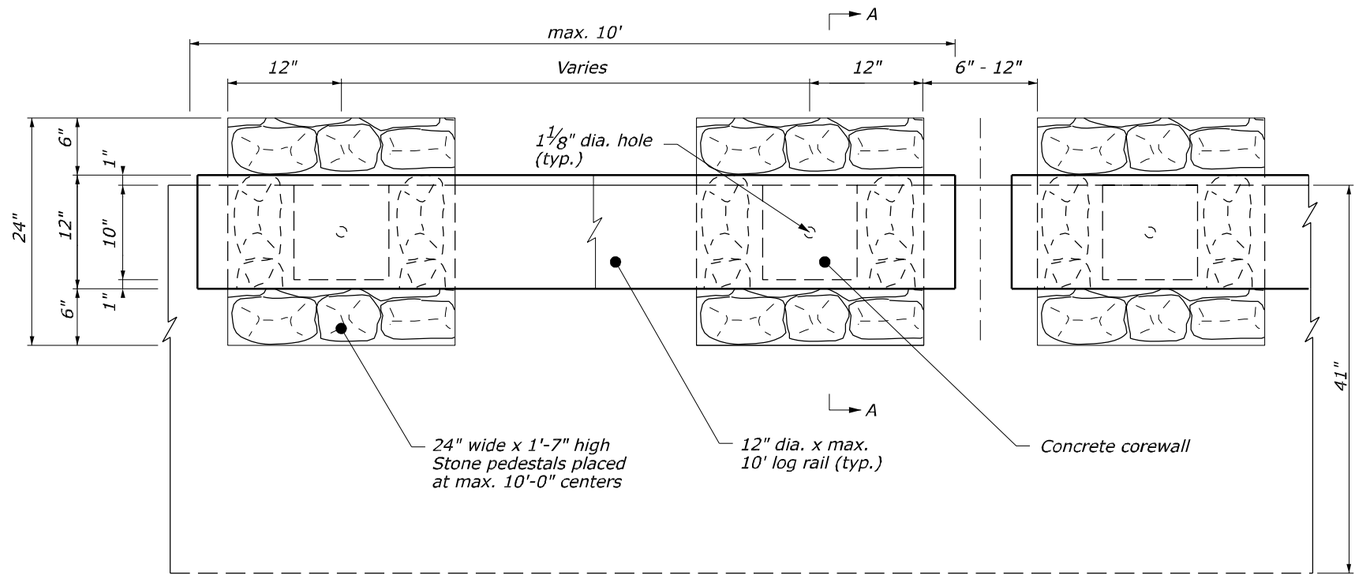
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

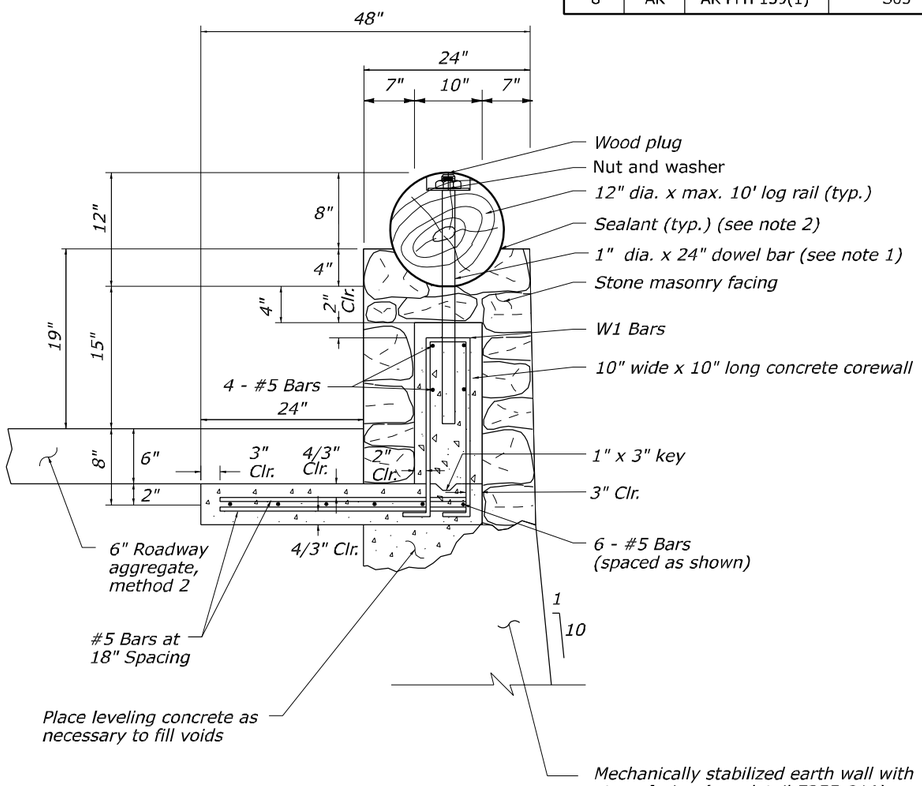
MECHANICALLY STABILIZED EARTH WALL WITH MASONRY FACE FINISH

DETAIL APPROVED FOR USE	DETAIL
REVISED:	E255-01A

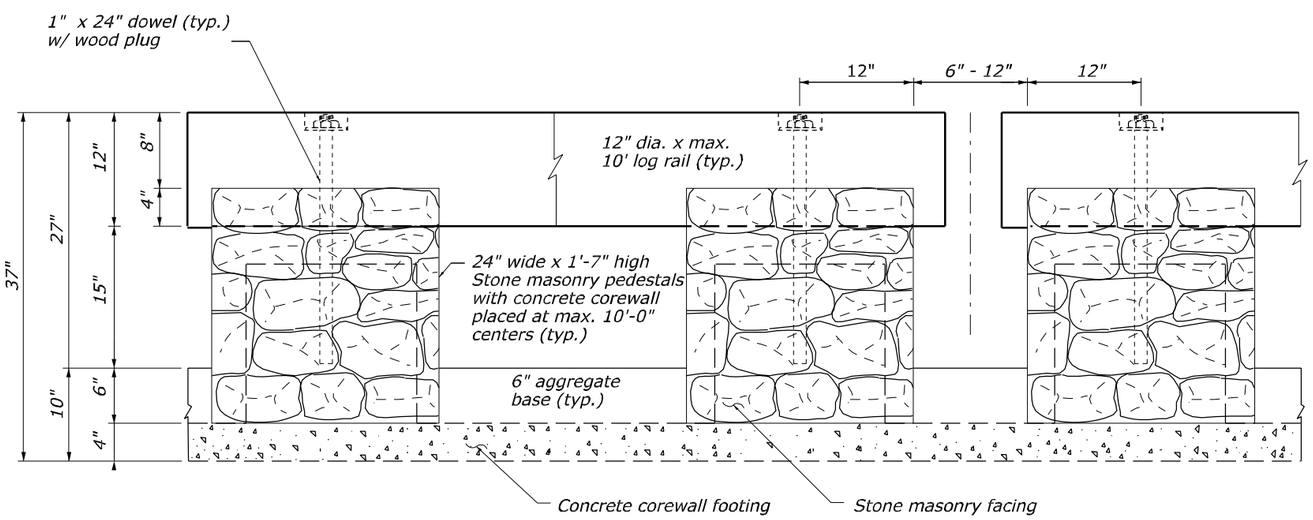
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	S05



PLAN



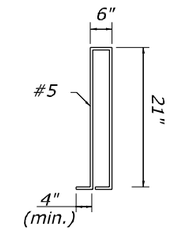
STONE MASONRY PEDESTALS
WITH CONCRETE COREWALL
DETAIL A-A



ELEVATION

NOTES:

1. Use type A or type B dowel bars.
2. Seal log rail with stone pedestals as shown with method approved by the CO.
3. Drill holes for dowel bars anchoring log rail to stone pedestals 1/8 inch larger than dowel bar diameter.
4. Clean and prepare holes in accordance to the epoxy manufacturer's recommendation.
5. Furnish log rail elements of peeled, round Coastal Douglas-fir, Western hemlock, Western larch, Western pine, Jack pine, Lodgepole pine or approved by FH.
6. Treat log rail with water-borne preservative CCA according to State Standard.



W1 BAR
BENDING DIAGRAM

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION

DETAIL

LOG RAIL ON STONE PEDESTAL

DETAIL APPROVED FOR USE	DETAIL
REVISED:	E617-01A

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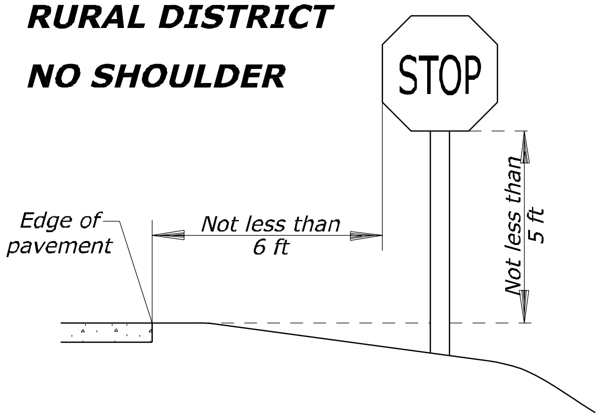
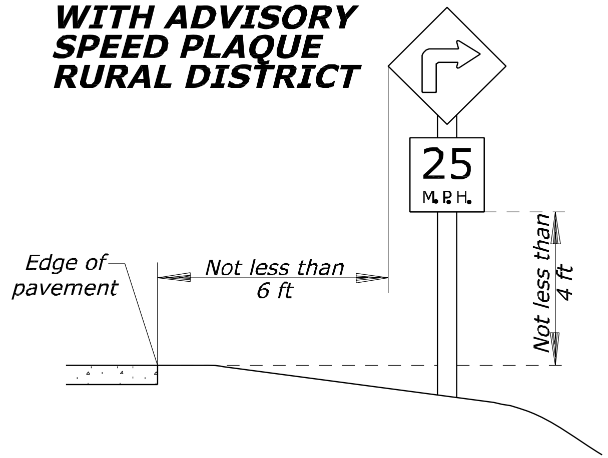
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	S06

ROADSIDE SIGN RURAL DISTRICT

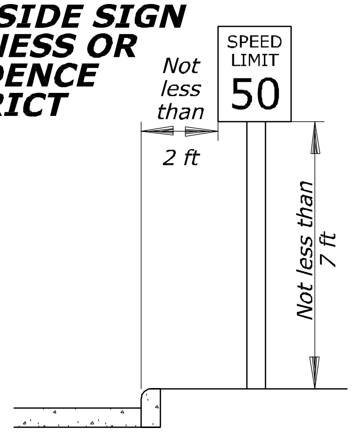
NO SHOULDER



WARNING SIGN WITH ADVISORY SPEED PLAQUE RURAL DISTRICT

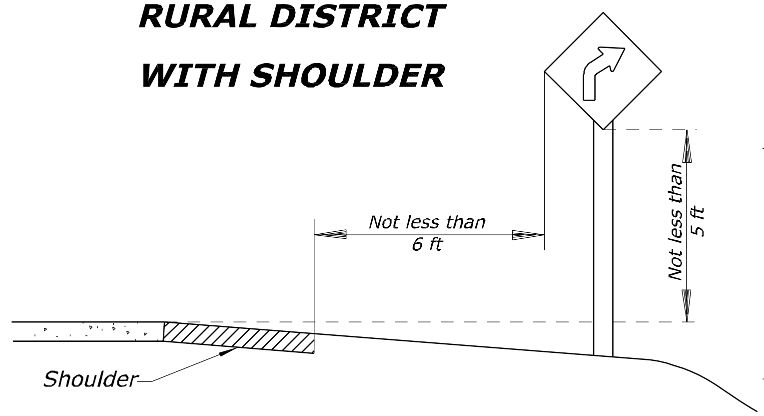


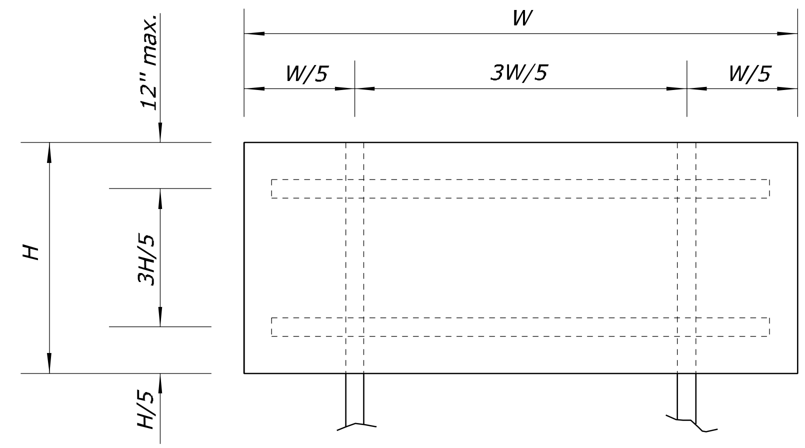
ROADSIDE SIGN BUSINESS OR RESIDENCE DISTRICT



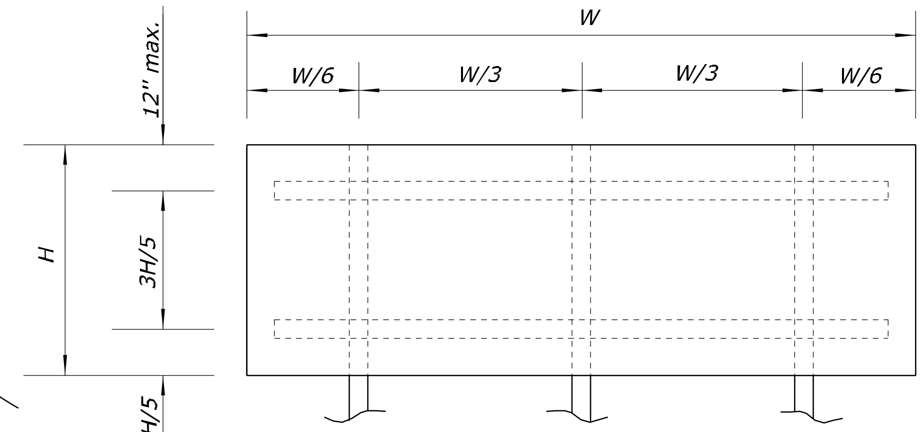
ROADSIDE SIGN RURAL DISTRICT

WITH SHOULDER





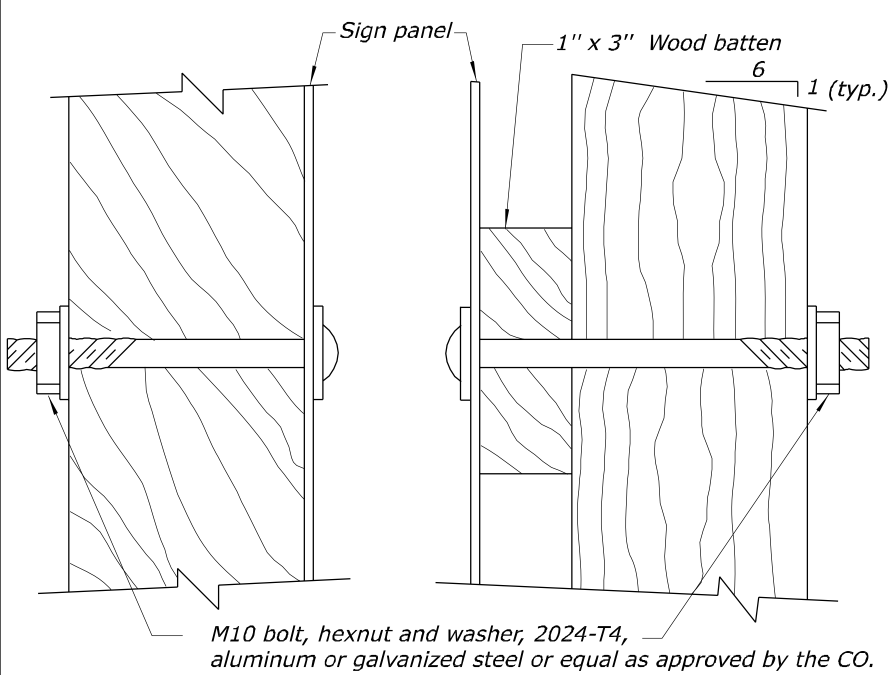
DOUBLE POST



TRIPLE POST

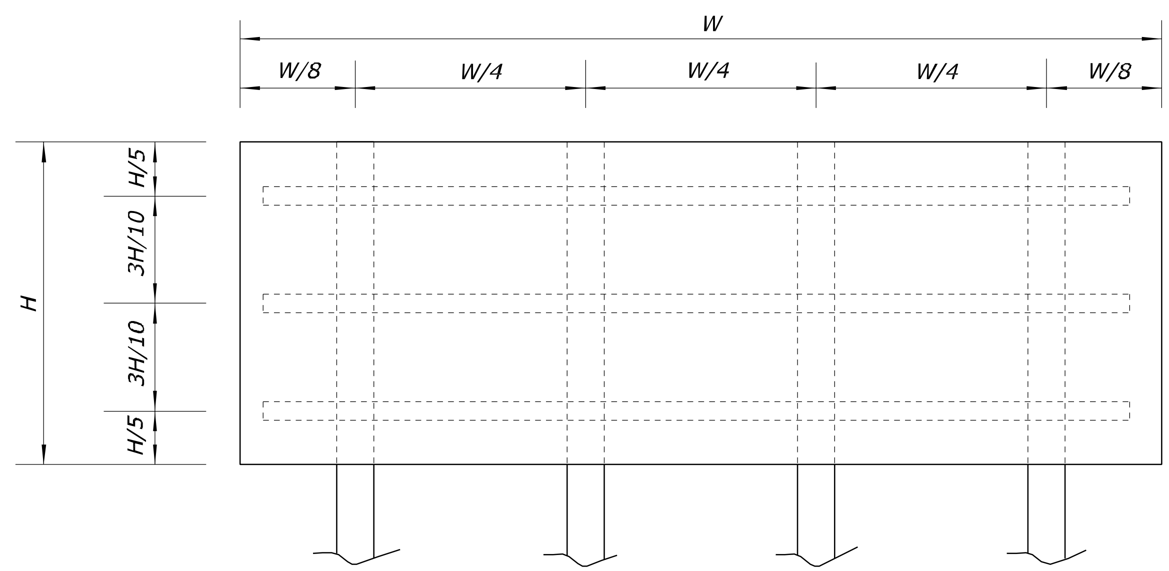
Notes:

1. Locations and height to be in accordance with the 'Manual on Uniform Traffic Control Devices for Streets and Highways' (MUTCD), latest edition.
2. Use wood battens bolted to post at vertical spacings not to exceed 30-inches.
3. Use double posts if W is over 3 feet.
4. For sign punching details, see the blank standards in the "Standard Highway Signs" as specified in the MUTCD, latest edition.
5. For steel posts, provide a ¼" x 6" soil plate. Use the same type of steel for the soil plate as for the post. Soil plate is not required for breakaway design.
6. For signs requiring posts sizes 6 x 6 and greater, signs are considered to be non-breakaway if multiple posts are required and posts cannot be spaced a minimum of 7 feet apart. Place non-breakaway signs outside the clearzone or shield with approved barrier. Do not place holes in posts of non-breakaway signs.
7. Depth, D, is to be in accordance with the 'Manual on Uniform Traffic Control Devices for Streets and Highways' (MUTCD), latest edition, Section 2A.21 and the AASHTO manual 'Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals', latest edition or as directed by the CO. D (min) is given in CHART A.



WITHOUT BATTEN **WITH BATTEN**

FASTENER DETAIL



QUADRUPLE POST

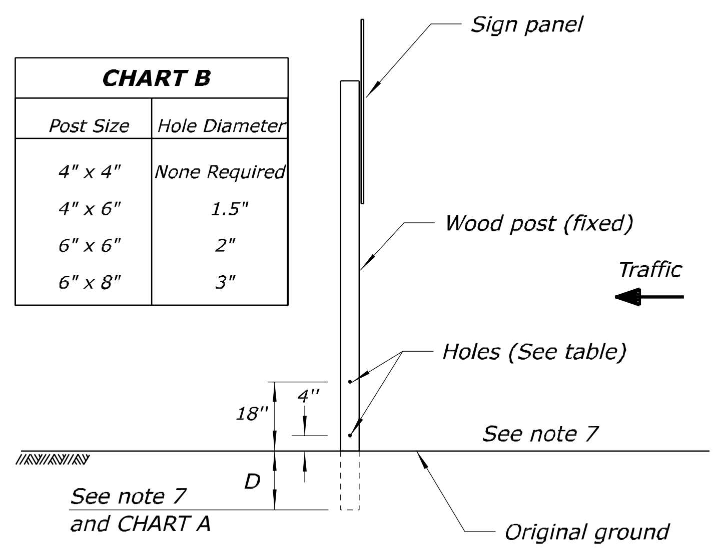
CHART A

Post Size (Inch)	D (min.) *	Maximum Sign Area (sq. ft.)			
		Single Post	Double Post	Triple Post	Quadruple Post
4 x 4 (Wood)	3'	10	20	X	X
4 x 6 (Wood)	4'	15	35	45	60
6 x 6 (Wood)	4'	20	50	75	100

* See note 7

CHART B

Post Size	Hole Diameter
4" x 4"	None Required
4" x 6"	1.5"
6" x 6"	2"
6" x 8"	3"



BREAKAWAY SUPPORT DETAIL

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

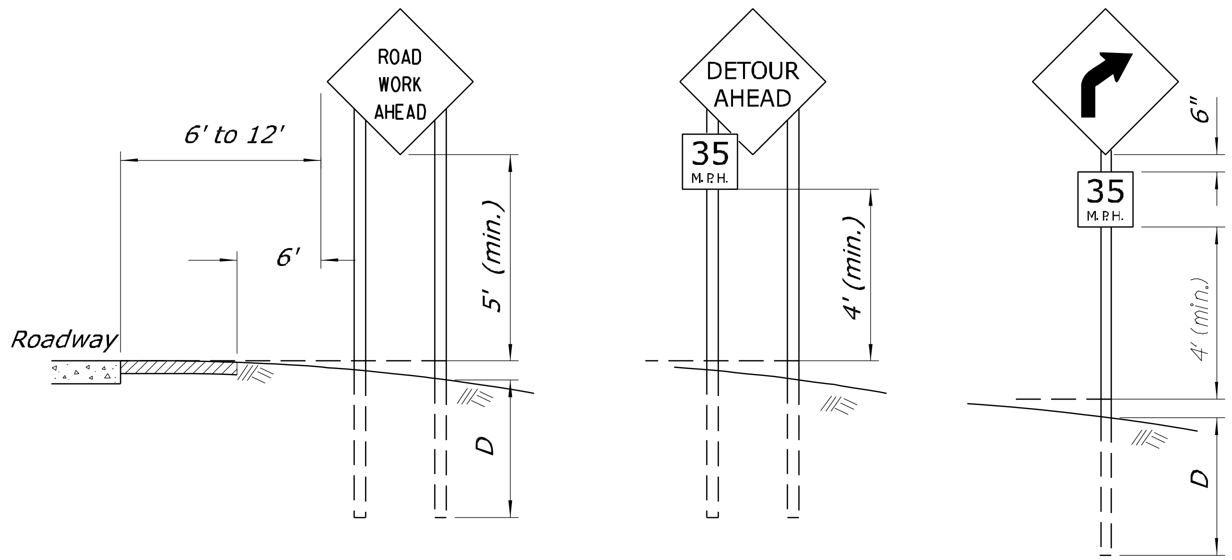
SIGN STRUCTURES

DETAIL APPROVED FOR USE

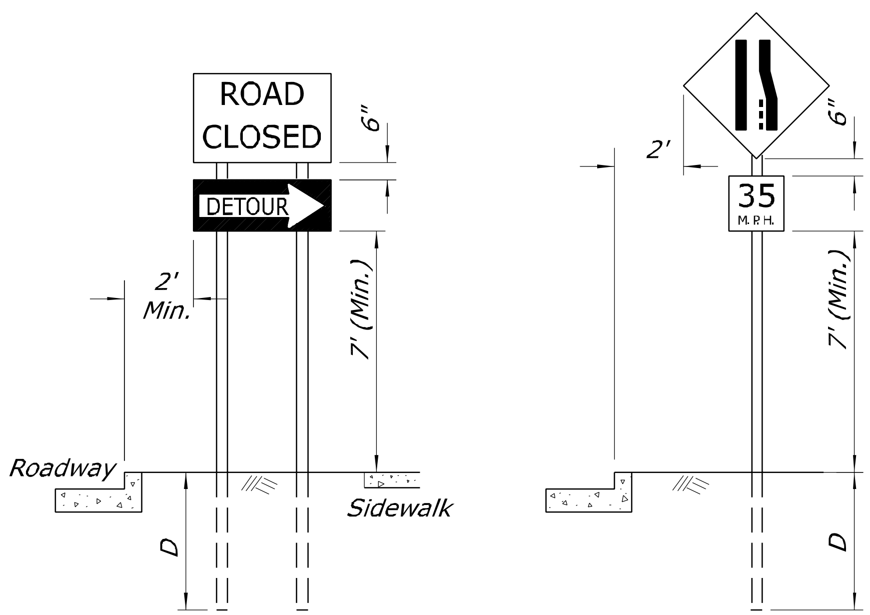
REVISED: 03/07

DETAIL E633-01

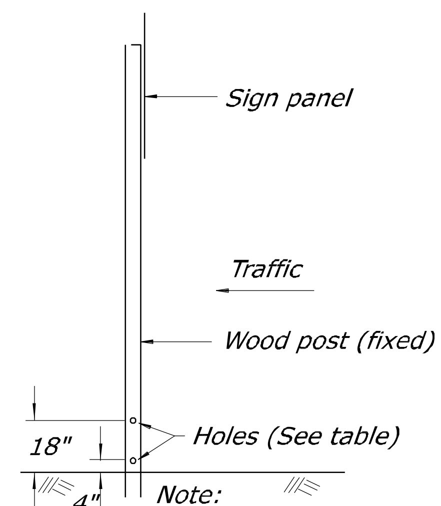
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	S07



RURAL AREA



URBAN AREA

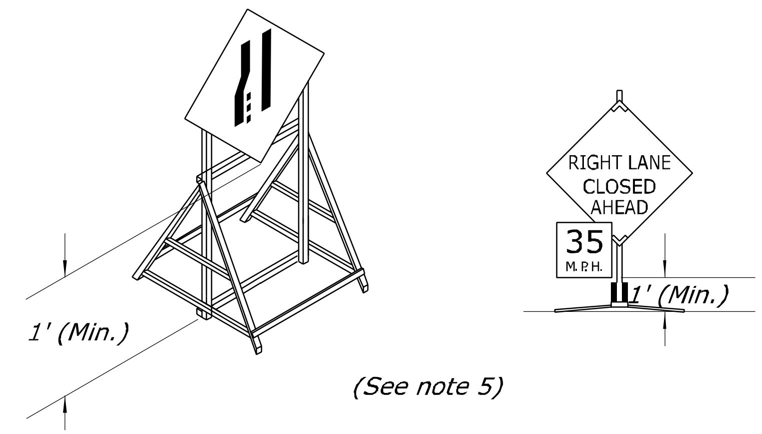


Note:
For signs requiring 6"x6" posts and greater, signs are considered to be non-breakaway if multiple posts are required and the posts cannot be spaced a minimum of 7 feet apart.

BREAKAWAY SUPPORT DETAIL
(FIXED SIGNS - 4" x 6" AND GREATER POSTS)

FIXED ROADWAY SIGNS

Post size	D	Hole Dia.	Maximum Sign Area - Sq. ft.			
			1 Post	2 Posts	3 Posts	4 Posts
4" x 4"	4'	None Req'd	10	20		
4" x 6"	4'	1.5"		35	50	70
6" x 6"	5'	2"		50	75	100
6" x 8"	5'	3"		85	125	165



(See note 5)

PORTABLE SIGNS

(See note 4)

Notes:

1. Wood posts are 4"x 4" unless otherwise indicated.
2. Mount signs that are wider than 3-feet or larger than 10 square feet on double posts.
3. All lumber dimensions are nominal.
4. The Contractor may submit alternate details for portable signs, however, sign mounts hold the sign face in a vertical plane. Portable signs may be mounted lower than fixed signs when approved by the CO. Ensure all portable sign supports meet the requirements of NCHRP-350 for crashworthiness.
5. When parking is permitted within 200 feet of the sign, mount the sign a minimum of 7 feet above the pavement surface.
6. When approved by the CO and the Utility Company, utility poles may be used for sign mounting.
7. For posts greater than 4" x 4" see the Breakaway Support Detail. If breakaway design cannot be used, due to post spacing, the sign should be placed outside the clearzone or be shielded by barrier. Do not place holes in posts of non-breakaway signs

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

U.S. CUSTOMARY DETAIL

CONSTRUCTION TRAFFIC CONTROL SIGN MOUNTING

DETAIL APPROVED FOR USE 02/2007
REVISED: 02/07 06/07

DETAIL E635-01

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REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	S08

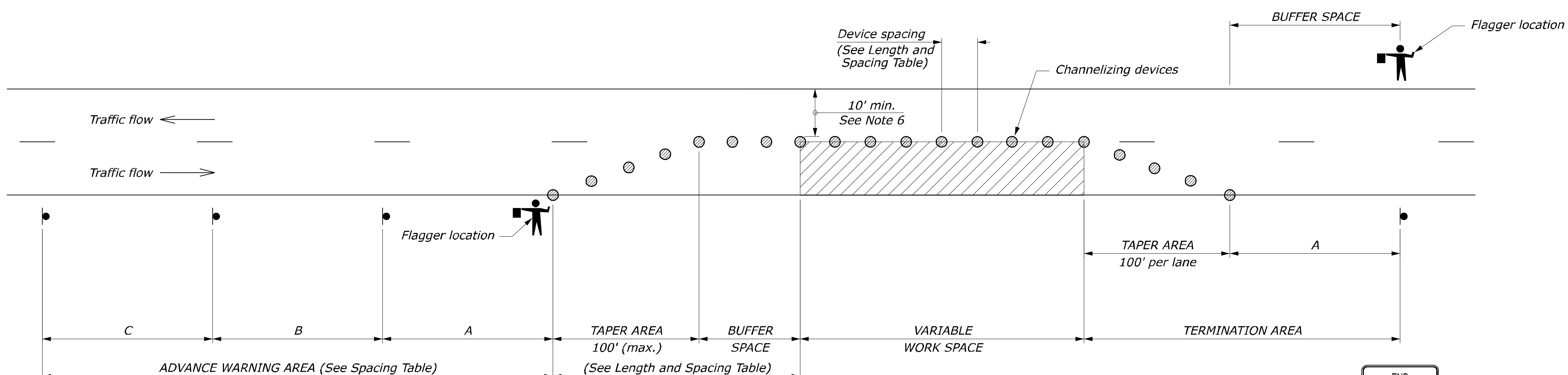
LENGTH AND SPACING TABLE				
APPROACH SPEED*	LENGTH OF BUFFER SPACE	CHANNELIZING DEVICE		
		TAPER AREA	BUFFER SPACE	WORK SPACE
MPH	FEET	SPACING IN FEET		
25	155	20	50	50
30	200	20	60	60
35	250	20	70	70
40	305	20	80	80
45	360	20	90	90
50	425	20	100	100
55	495	20	110	110

* Approach speed based on the regulatory posted speed, not the advisory speed.

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban 40 MPH and less	100	100	100
Urban 45 MPH and greater	350	350	350
Rural	500	500	500
Expressway/Freeway	1000	1500	2640

NOTE:

1. Signs are shown for one direction of travel only. Place devices similar to those depicted for the opposite direction of travel.
2. Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
3. For pilot car operation, mount the PILOT CAR FOLLOW ME (G20-4) sign at a conspicuous location on the rear of vehicle. Prominently display the name of the contractor on the pilot car.
4. If closure is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
5. For night time flagging operation, provide floodlighting at flagger stations.
6. For project specific minimum width, refer to Special Contract Requirements, Section 156.
7. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.
8. If signs will be in place more than 72 consecutive hours, use ground-mounted post.



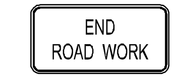
W20-1
See Note 4

W20-4

W13-1

W20-7a

W16-2



G20-2
See Note 4

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH FLAGGERS)

STANDARD APPROVED FOR USE 6/2005

REVISED:
DRAFT: 1/2007

STANDARD 635-6

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REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	S09

LENGTH AND SPACING TABLE

APPROACH SPEED*	LENGTH OF BUFFER SPACE	CHANNELIZING DEVICE		
		TAPER AREA	BUFFER SPACE	WORK SPACE
MPH	FEET	SPACING IN FEET		
25	155	20	50	50
30	200	20	60	60
35	250	20	70	70
40	305	20	80	80
45	360	20	90	90
50	425	20	100	100
55	495	20	110	110

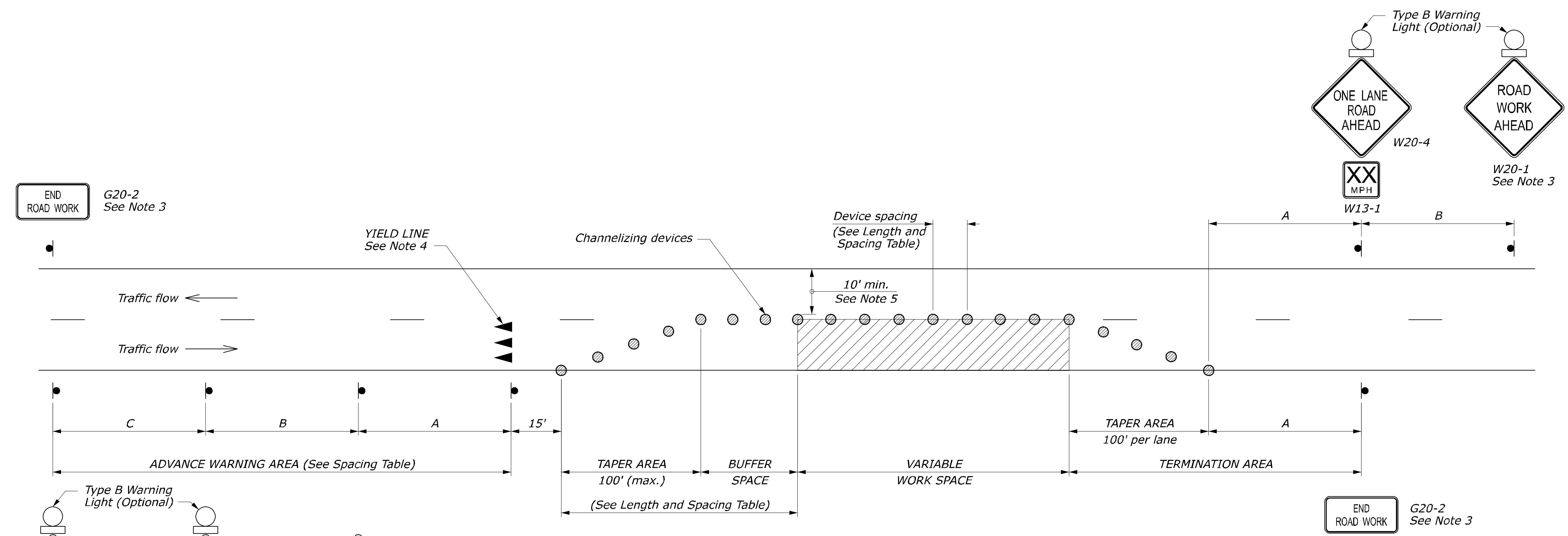
* Approach speed based on the regulatory posted speed, not the advisory speed.

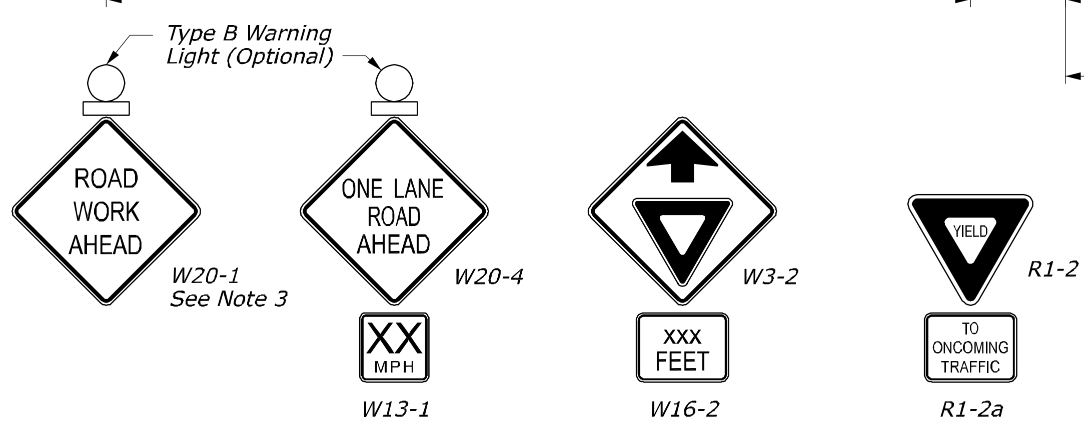
SIGN SPACING TABLE

ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban 40 MPH and less	100	100	100
Urban 45 MPH and greater	350	350	350
Rural	500	500	500
Expressway/Freeway	1000	1500	2640

NOTES:

1. Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
2. If lane closure is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
3. If the surface is paved, install yield lines that comply with Section 3B.16 of the MUTCD.
4. For project specific minimum width, refer to Special Contract Requirements, Section 156.
5. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.
6. If signs will be in place more than 72 consecutive hours, use ground-mounted post.





U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH YIELD SIGN)

DETAIL APPROVED FOR USE

REVISED: 03 /08

DETAIL E635-07A

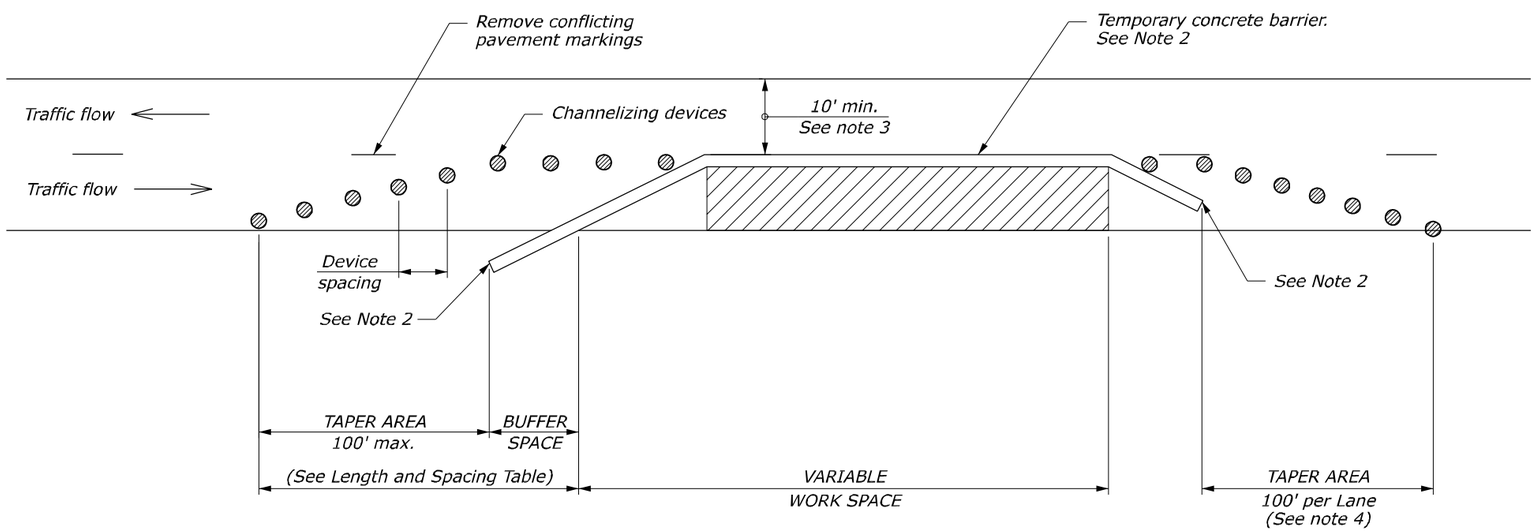
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	S10

LENGTH AND SPACING TABLE					
APPROACH SPEED* MPH	LENGTH OF BUFFER SPACE FEET	CHANNELIZING DEVICE			CONCRETE BARRIER FLARE RATE
		TAPER AREA	BUFFER SPACE	WORK SPACE	
		SPACING IN FEET			
25	155	20	50	50	1:8
30	200	20	60	60	1:8
35	250	20	70	70	1:9
40	305	20	80	80	1:10
45	360	20	90	90	1:12
50	425	20	100	100	1:14
55	495	20	110	110	1:16

* Approach speed based on the regulatory posted speed, not the advisory speed.

NOTE:

1. Install signs and other devices for single lane closure according to Standard 635-6, 7, 8, or 9. Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
2. Place barrier according to the Roadside Design Guide published by the American Association of State Highway and Transportation Officials (AASHTO). Terminate barrier ends outside the clear zone or protect the ends of the barrier with a crash cushion.
3. For project specific minimum width, refer to Special Contract Requirements, Section 156.
4. Place channelizing devices at downstream taper during non-work hours or when access is not needed.
5. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.
6. Reduce or eliminate drums and barrier in downstream taper if necessary to provide access to work space.



NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT WITH TEMPORARY BARRIER

STANDARD APPROVED FOR USE 6/2005
REVISED:
DRAFT: 1/2007

STANDARD 635-13

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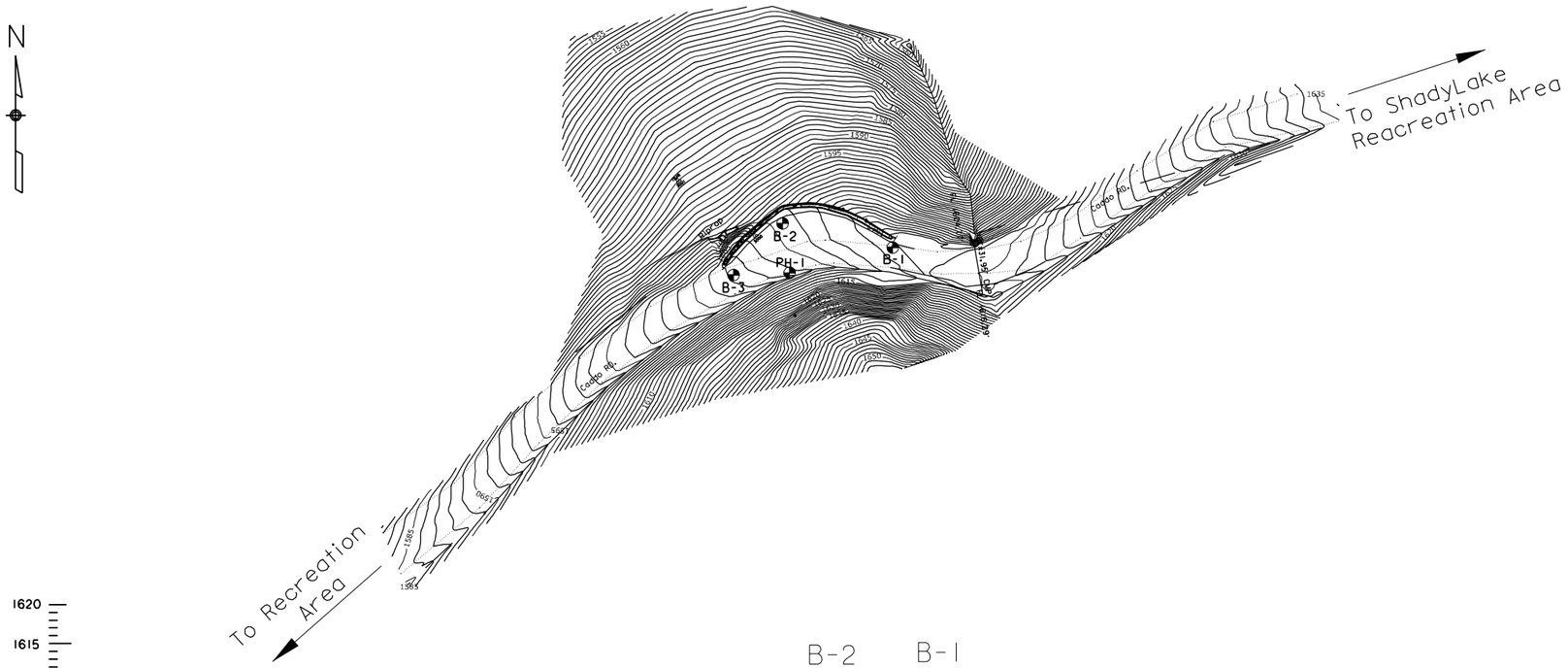
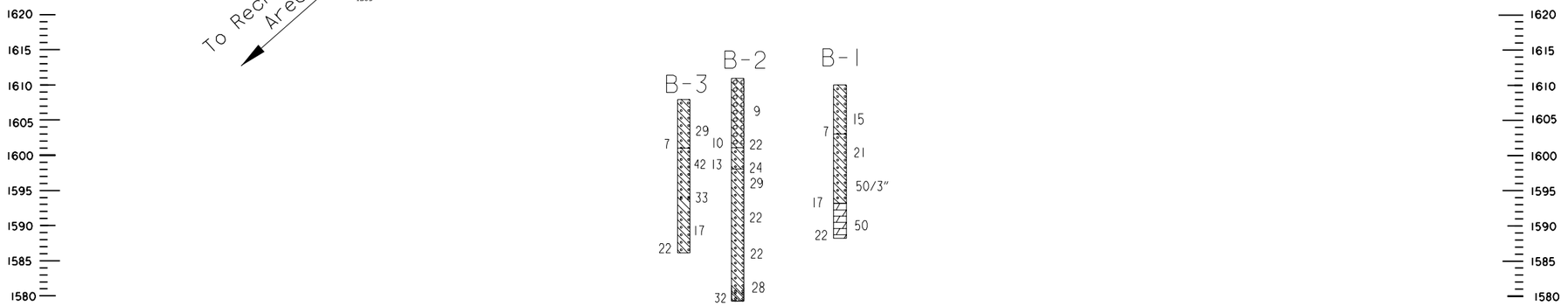
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	P01



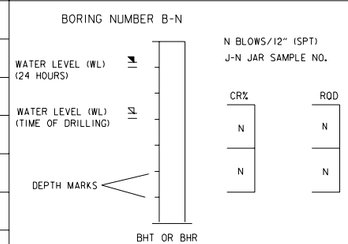


ELEVATION

THE BORING LOGS ON THIS SHEET REPRESENT THE SUBSURFACE CONDITIONS ENCOUNTERED AT THE BORING LOCATIONS SHOWN. SUBSURFACE CONDITIONS MAY VERY BETWEEN THESE LOCATIONS.

SYMBOL	TYPE OF MATERIAL	SYMBOL	TYPE OF MATERIAL
	GRAVEL PAVEMENT		CLAY W/ CHERT GRAVEL LAYERS
	GRAVEL		BOULDERS
	SILT and SAND		BEDROCK
	SANDY CLAY		
	SILTY SAND		
	CLAYEY SILT		
	CLAY		

TEST BORING



MISCELLANEOUS

1. SPT - STANDARD PENETRATION TEST - AASHTO T206-74
2. R - REFUSAL, SPT 100 BLOWS/12"
3. CR% - PERCENT OF RECOVERY
4. ROD - ROCK QUALITY DESIGNATION
5. BHT - BORE HOLE TERMINATED
6. BHR - BORE HOLE REFUSAL
7. GEOPHYSICAL TEST SITE: SEISMIC S RESISTIVITY R

BUCKEYE VISTA
PROJECT AR PFH 159(1)
GEOTECHNICAL REPORT NO. 07-04

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

OUACHITA NATIONAL FOREST

BORING LOCATION PLAN AND SUBSURFACE PROFILE

0 100
SCALE IN FEET

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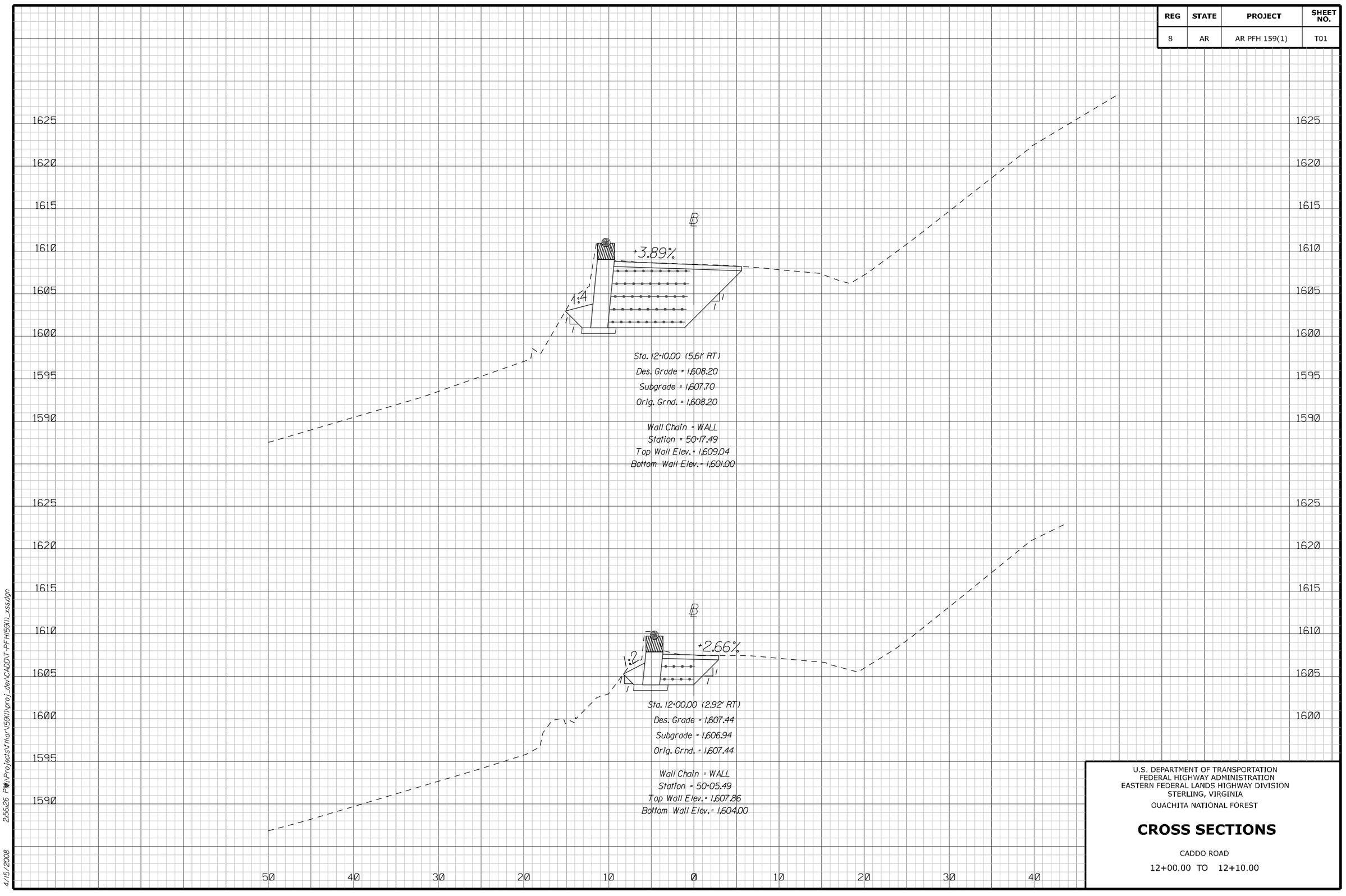
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	T01



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EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA
OUACHITA NATIONAL FOREST

CROSS SECTIONS

CADDO ROAD

12+00.00 TO 12+10.00

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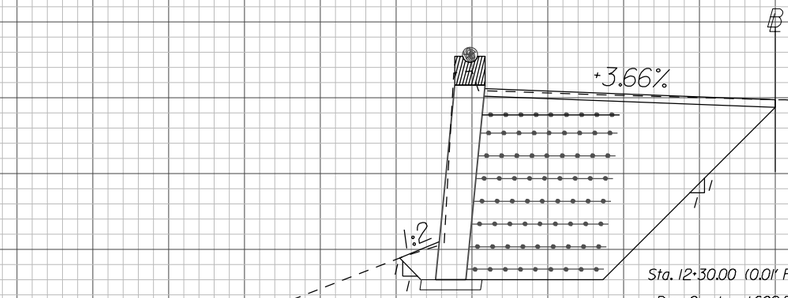
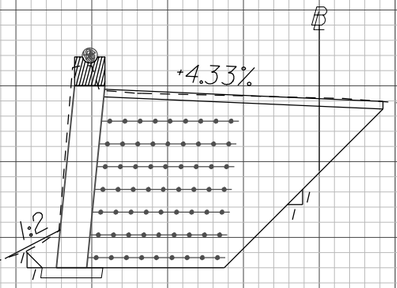
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	T02



Sta. 12+30.00 (0.01' RT)
Des. Grade = 1,609.87
Subgrade = 1,609.37
Orig. Grnd. = 1,609.87

Wall Chain = WALL
Station = 50+41.32
Top Wall Elev. = 1,610.83
Bottom Wall Elev. = 1,598.00



Sta. 12+20.00 (4.19' RT)
Des. Grade = 1,608.97
Subgrade = 1,608.47
Orig. Grnd. = 1,608.97

Wall Chain = WALL
Station = 50+29.10
Top Wall Elev. = 1,610.02
Bottom Wall Elev. = 1,598.00

1630 1625 1620 1615 1610 1605 1600 1595 1590

50 40 30 20 10 0 10 20 30 40

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STERLING, VIRGINIA
OUACHITA NATIONAL FOREST

CROSS SECTIONS

CADDO ROAD

12+20.00 TO 12+30.00

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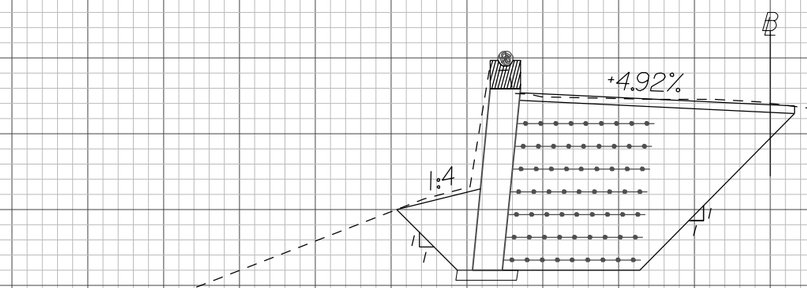
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	T03



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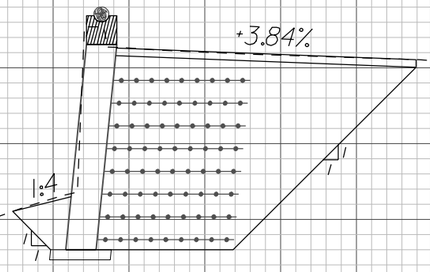
Des. Grade = 1,611.81
Subgrade = 1,611.31
Orig. Grnd. = 1,611.81

Wall Chain = WALL
Station = 50+76.00
Top Wall Elev. = 1,612.95
Bottom Wall Elev. = 1,601.00



Sta. 12+40.00 (1.08' LT)
Des. Grade = 1,610.55
Subgrade = 1,610.05
Orig. Grnd. = 1,610.55

Wall Chain = WALL
Station = 50+53.02
Top Wall Elev. = 1,611.56
Bottom Wall Elev. = 1,598.00

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STERLING, VIRGINIA
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CROSS SECTIONS

CADDO ROAD

12+40.00 TO 12+60.00

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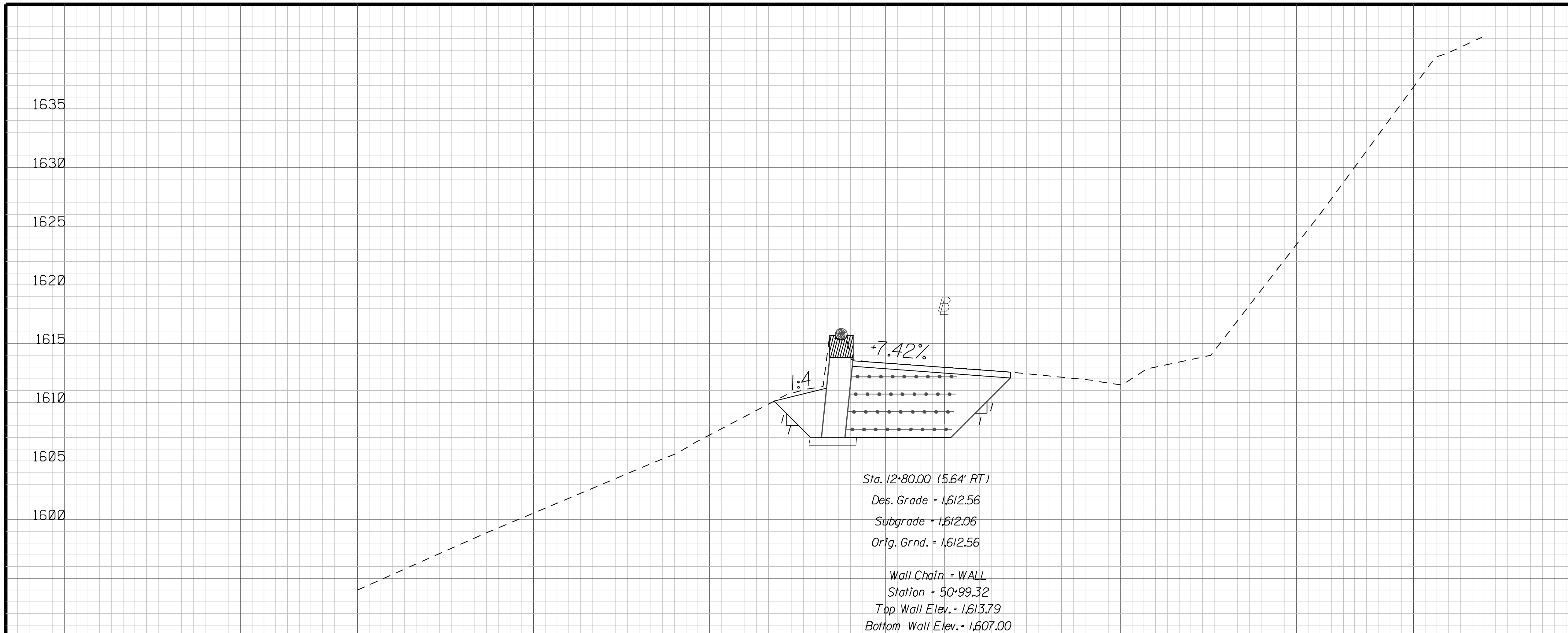
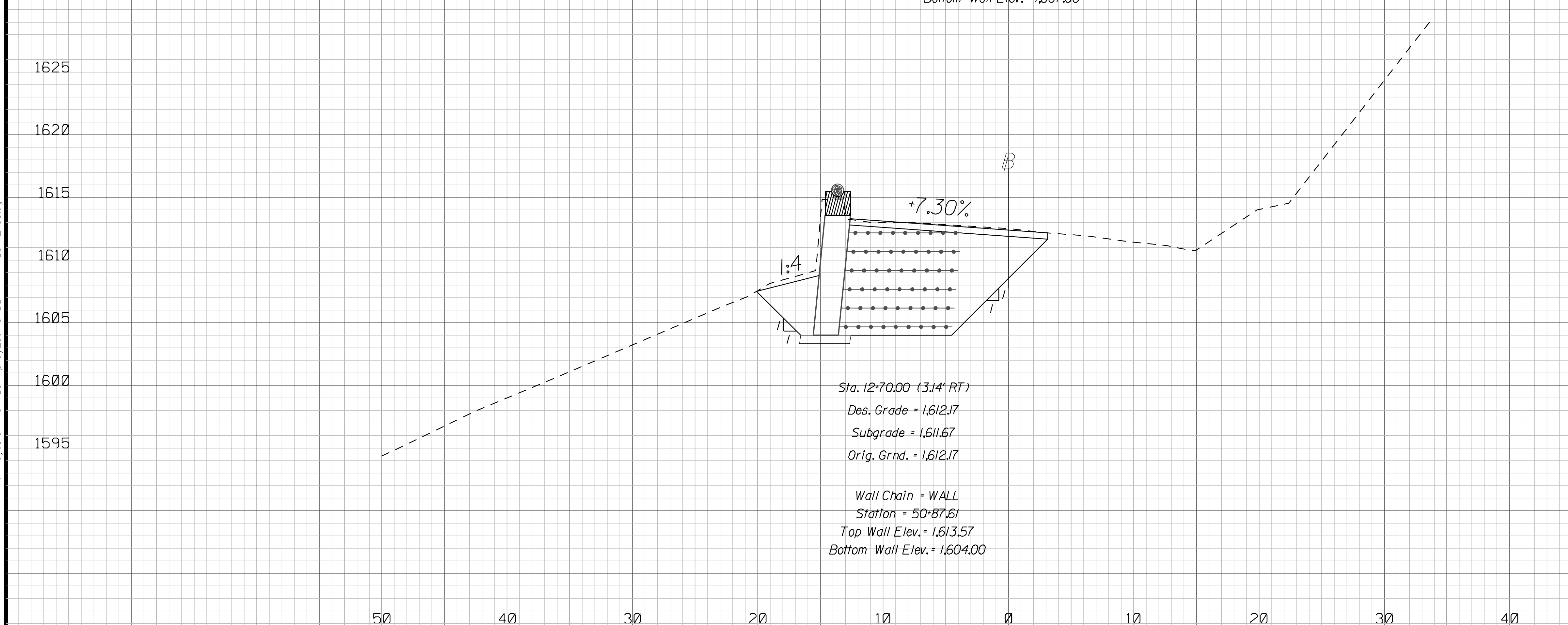
REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	T04





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EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

OUACHITA NATIONAL FOREST

CROSS SECTIONS

CADDO ROAD

12+70.00 TO 12+80.00

REG	STATE	PROJECT	SHEET NO.
8	AR	AR PFH 159(1)	T05

1640
1635
1630
1625
1620
1615
1610
1605
1600

B

1:4

+4.58%

Sta. 12+90.00 (3.24' RT)
Des. Grade = 1,613.21
Subgrade = 1,612.71
Orig. Grnd. = 1,613.21

Wall Chain = WALL
Station = 51+10.54
Top Wall Elev. = 1,613.75
Bottom Wall Elev. = 1,610.00

50 40 30 20 10 0 10 20 30 40

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

OUACHITA NATIONAL FOREST

CROSS SECTIONS

CADDO ROAD

12+90.00

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